

its smooth ashy-white stems and branches, puberulent branchlets, and dark-green elliptic-lanceolate mostly obtuse leaves which are only short-pubescent on both surfaces and often only very slightly so.

The species has been collected in anthesis in January and March, in fruit in March. Gaumer 23627 & 24411 have the younger leaves more densely velutinous beneath than is seen on any of the other collections. Standley (1924, 1930) erroneously reduces this species to synonymy under L. umbellata and records the vernacular name "salvia poblana", as well as "xoltenuuc" and "xoltémuc".

In all, 25 herbarium specimens, including type material of all the names involved, and 17 mounted photographs have been examined by me.

Citations: MEXICO: Quintana Roo: Gaumer & sons 1475 (B, F—58273, S). Yucatán: G. F. Gaumer 871 (F—36674, G), 971 (Br, Ca—446213, Du—207660, F—37319, F—photo, G, Mi, N, N—photo, N—photo, S—photo, Si—photo, Z—photo, Z—photo), 2109 (F—58907, G, N), 23627 (F—466023, N), 23627 bis (F—466024), 24176 (F—552180, N, S), 24411 (F—552404); Hunnewell 18293 (G); Seler & Seler 4918 [Macbride photos 17554] (F—663083—photo of type, G— isotype, G—photo of type, Kr—photo of type, N— isotype, N—photo of type, N—photo of type, N—photo of type, N—photo of isotype, S—photo of type, Z—photo of type, Z—photo of isotype).

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#### ADDITIONAL NOTES ON THE GENUS VERBENA. I

Harold N. Moldenke

#### VERBENA [Dorst.] L.

Additional synonymy: Glanduria Troncoso, Biol. Abstr. 46 (21): B.53 & B.128, sphalm. 1965.

Additional bibliography: N. J. Anderss., Galap. Veg. 199—200. 1854; N. J. Anderss., Vet. Akad. Handl. Stockh. 1853: 199—200. 1855; H. B. Davis, Life & Works Pringle 21, 49, 104, 130, 132, 152, 169, & 193. 1936; Christie, Ark. Farm Res. 21 (9): 144. 1937; Dinlock & Ford, Phytopath. 40 (1): 7. 1950; Moldenke, Biol. Abstr. 33: 1215 (1959) and 35: 1688. 1960; Deitschman & Pruett, Proc. 17th N. Cent. Weed Control Conf. 1960; Goodspeed, Pl. Hunt. Andes 246. 1961; Reitz, Sellowia 13: 67 & 110. 1961; Clair, Of Herbs & Spices 153 & 232. 1961; Tergit, Fls. Through the Ages 233—234. 1961; Moldenke, Biol. Abstr. 36: 719, 2843, & 4036 (1961) and 37: 1062 & 2455. 1962; Brilmayer, All about Vines 350. 1962; Deitschman & Pruett, Weed Abstr. 11 (3): 211. 1962; Hocking, Excerpt. Bot. A.4: 592 (1962), A.5: 44 & 45 (1962), and A.6: 534—536. 1963; Rickett, New Field Book Am. Wild Fls. 280, fig. 98, & pl. 12. 1963; Bohm,

Pflanzenschutz 31 (4/5): 67—68. 1964; Bohm, Biol. Abstr. 45: 7066 (1964) and 45 (20): B.131. 1964; Troncoso, Darwiniana 13: 468—485, fig. 1—6. 1964; Soukup, Biota 5: 194. 1964; A. Webster, Carib. Gard. 18, 76, 129, & 138. 1964; Altman & Dittmer, Biol. Data Book 494. 1964; Matsumura, Amat. Herb. 25 (3-4): 42. 1964; Sharp & Baker, Castanea 29: 183. 1964; Perring & Walters, Fl. Cambridg. 179. 1964; R. Pearson, An. & Pl. Cenozoic Era 58 & 72. 1964; Loewenfeld, Herb. Gardening 214—216. 1964; Reitz & Klein, Sellowia 16: 73 & 117. 1964; Angely, Fl. Paran. 32: 69. 1964; Moldenke, Biol. Abstr. 45: 2772, 3136, 5377, 6658, 7026, & 8025 (1964) and 46: 632, 3616, & 3618 (1965), 46 (10): B.130 (1965), 46 (13): B.129 (1965), and 46 (15): B.127. 1965; Moldenke, Phytologia 11: 435—509 (1965) and 12: 6, 21, 27, 48—50, 55, 57, 63, 84, 87, 118, 205, 207, 211, 225, 226, 229, 230, 232, 265, & 288. 1965; Anon., Ind. Sem. Stich. Konink. Rotterdam. Dierg. [6]. 1965; Anon., Delect. Sem. Grad. Bot. Univ. Bucarest. 1964: 35. 1965; Cody, Ind. Sem. Pl. Res. Inst. Ottawa 1965: 31. 1965; Raymond, Ann. '65 Result. Jard. d'Essai Jard. Bot. Montreal 85. 1965; Florists' Rev. April 15. 1965; Anon., Biol. Abstr. 46 (9): B.131. 1965; Moldenke, Biol. Abstr. 46: 3246. 1965; Anon., Biol. Abstr. 46 (14): B.130 (1965), 46 (17): B.128 (1965), and 46 (21): B.53 & B.128. 1965; Moldenke, Résumé Suppl. 12: 1, 2, 5, 7, 8, 10, 12, & 13. 1965; Anon., Assoc. Etud. Fl. Afr. Trop. Index 1964: 56. 1965; Rambo, Pesquis. Bot. 21: 31—56, 58—[60]. 1965; Gooding, Loveless, & Proctor, Fl. Barbados 364 & 485. 1965; Neal, In Gard. Hawaii, new rev. ed., 720—722. 1965; Moldenke, Phytologia 12: 479—480. 1966; L. M. Reid, Park Management Ser. Bull. 5: 5 & 48. n.d.

In all, 39,033 herbarium specimens and mounted illustrations, as well as 1750 literature references, are cited in the main body of this work, of which this is the first supplement.

Additional abbreviations for the names of herbaria whose material is cited in this work are:

Ac = Aarhus University, Aarhus, Denmark

Av = Facultad de Agronomía y Veterinaria, Universidad de Buenos Aires, Buenos Aires, Argentina

Ib = Instituto de Botánica Agrícola del I. N. T. A., Buenos Aires, Argentina

Ip = Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Mexico City, Mexico

Brilmayer (1962) speaks of the genus Verbena as follows, but probably is referring only to V. hybrida Voss, V. bipinnatifida Nutt., and V. peruviana (L.) Britton: "Tender perennials, hardy in Southern gardens, usually grown as annuals in cooler climates. Where growing seasons are short, they should be started early indoors. March-sown seeds should begin to flower in July. Or winter over a few stock plants indoors, and root cuttings in spring for earlier bloom. Verbenas make a splendid show in hanging baskets, or spilling over the edges of window boxes and other outdoor containers. They are not fussy about soil, require only free air circulation and full sunlight to flower their best."

## VERBENA ABRAMSI Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 37: 2455. 1962; Hocking, Excerpt. Bot. A.6: 534. 1963; Moldenke, Biol. Abstr. 45: 6658. 1964; Moldenke, Phytologia 11: 437. 1965.

## xVERBENA ADULTERINA Hausskn.

Additional bibliography: Hocking, Excerpt. Bot. A.6: 534. 1963; Moldenke, Phytologia 11: 437. 1965.

## VERBENA ALATA Sweet

Additional bibliography: Hocking, Excerpt. Bot. A.6: 534. 1963; Moldenke, Biol. Abstr. 45: 3136. 1964; Moldenke, Phytologia 11: 437. 1965; Rambo, Pesquis. Bot. 21: 31—32 & [59]. 1965.

Rambo (1965) cites Herb. Anchieta 6838 [Bruxel s.n.] and 311459 from Santa Catarina, 1134, 28735 [Emrich s.n.], 29983 [Emrich s.n.], 32302, 35416, 44083, 44585, 44819, 44944, 45639, 46011, 49719, 49760, 52806 [Emrich s.n.], 53933, 53959, 54084, 54634, 54735, 55046, 56353, 56798, 60516 [Sacco s.n.], and 64063 [Sacco 411] from Rio Grande do Sul, and 35956 [Hatschbach 484] from Paraná, Brazil — all collected by himself except where otherwise noted. He describes the plant as "Herbaceous, sparsely branched, very stiff, leaves reduced, habit xerophytic (!), up to 2 m. high", growing in "Swamps, densely vegetated by shrub and tall herbs" in the "Northeastern Lowlands and coastal strip, especially frequent on the northeastern Highlands" of Rio Grande do Sul, with a general distribution "From Minas Gerais to RGS".

Additional citations: BRAZIL: State undetermined: Sellow s.n. [Macbride photos 17399] (W—photo).

## VERBENA ALATA f. ALBA Moldenke

Additional bibliography: Moldenke, Phytologia 8: 148—149. 1961; Hocking, Excerpt. Bot. A.6: 534. 1963.

## VERBENA AMBROSIFOLIA Rydb.

Additional bibliography: Moldenke, Biol. Abstr. 37: 2455. 1962; Hocking, Excerpt. Bot. A.5: 44 (1962) and A.6: 534. 1963; Moldenke, Phytologia 11: 437—438, 440, 448, 488, 490, & 491. 1965.

The J. Rzedowski 4366, distributed as V. ambrosifolia, is actually V. andrieuxii Schau., E. M. Marsh 2148 and C. M. Rogers 4705 are V. bipinnatifida Nutt., and E. G. Marsh 1188 & 1524 are V. ciliata Benth.

Additional citations: COLORADO: Las Animas Co.: C. M. Rogers 4433 (M1), 4556 (M1), 6015 (M1), 6033 (M1), 6044 (M1). OKLAHOMA: Cimarron Co.: C. M. Rogers 2123 (M1). TEXAS: Brewster Co.: Rose-Innes & Moon 1172 (Ld); B. H. Warnock 20121 (Ld), 20921 (Ld). Pecos Co.: Milliger 63 (Au—223250). NEW MEXICO: Union Co.: C. M. Rogers 5956 (M1). MEXICO: Coahuila: E. G. Marsh 707, in part (Au), s.n. [Loma Grande] (Au—219481).

## VERBENA AMBROSIFOLIA f. EGLANDULOSA Perry

Additional bibliography: Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 10: 92 (1964) and 11: 491. 1965.

Additional citations: ARIZONA: Cochise Co.: Deaver 6579 (Ac). MEXICO: Guanajuato: J. Rzedowski 9542 (Ip).

## VERBENA AMOENA Paxt.

Additional bibliography: Moldenke, Phytologia 10: 92. 1964. Recent collectors have found this plant in flower and fruit in June and July.

Additional citations: MEXICO: Federal District: Paray 2928 (Ip). México: Dávila s.n. [23.VI.1963] (Ip). CULTIVATED: India: Khoshoo 1 (Z).

## VERBENA ANDRIEUXII Schau.

Additional bibliography: Moldenke, Phytologia 10: 92. 1964. Rzedowski found this plant growing at the edge of an arroyo at 2250 meters altitude, with purple flowers, in flower and fruit in September. Material has been misidentified and distributed in herbaria as V. ambrosifolia Rydb.

Additional citations: MEXICO: San Luis Potosí: J. Rzedowski 4366 (Ip).

## VERBENA ARAUCANA R. A. Phil.

Additional bibliography: Moldenke, Phytologia 11: 438. 1965. Additional citations: CHILE: Linares: R. A. Philippi s.n. [Linares; Macbride photos 17400] (W--photo). Santiago: Macbride photos 34344 (W--photo).

## VERBENA ARENARIA Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.5: 45. 1962; Moldenke, Phytologia 8: 379. 1962; Moldenke, Biol. Abstr. 37: 1062. 1962.

## xVERBENA ARGENTINA Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 37: 1062. 1962; Hocking, Excerpt. Bot. A.5: 45. 1962; Moldenke, Phytologia 10: 93. 1964.

## VERBENA ARISTIGERA S. Moore

Additional bibliography: Moldenke, Phytologia 11: 438. 1965. Additional citations: BRAZIL: Matto Grosso: S. Moore 1083 [Macbride photos 17403] (W--photo of type).

## VERBENA ATACAMENSIS Reiche

Additional bibliography: Moldenke, Phytologia 11: 438. 1965. Recent collectors have found this plant in flower in November and in fruit in October and November. The flowers on Ricardi 2470 are described as having been "white".

Additional citations: CHILE: Antofagasta: Ricardi 2470 (Z), 3569 (Ac). Maule: Pfister s.n. [Termas de Cauquenes, 2-XI-1952]

(Ac).

## VERBENA BALANSAE Briq.

Additional bibliography: Moldenke, *Phytologia* 11: 438. 1965; Rambo, *Pesquis. Bot.* 21: 58. 1965.

## VERBENA BERTERII (Meisn.) Schau.

Additional bibliography: Moldenke, *Phytologia* 11: 438—439. 1965; Moldenke, *Résumé Suppl.* 12: 10. 1965.

Additional citations: CHILE: Colchagua: Bertero 744 [Macbride photos 7853, in part] (W—photo of isotype). Valparaíso: Bertero 1389 [Macbride photos 7853, in part] (W—photo).

## VERBENA BIPINNATIFIDA Nutt.

Additional bibliography: Loes., *Verh. Bot. Ver. Brand.* 53: 75 [Abhandl. 240]. 1912; Brilmayer, *All about Vines* 350. 1962; Hocking, *Excerpt. Bot. A.6:* 534. 1963; Moldenke, *Phytologia* 11: 439—441, 443, 448, 452, 453, 486, 488, 490, & 491. 1965.

The R. L. Crockett 8578 & 8619, cited below, may not actually have been collected in the counties to which they are here cited since their labels read "Johnson City — Kerrville" and "Johnson City — Austin" respectively.

Brilmayer (1962) says of this plant "tender trailing perennial grown as an annual, with ferny leaves and clusters of lilac flowers. Native of some midwestern states." McCart found the species growing on a calcareous bluff of the Fredericksburg Group, Goodland-Comanche Peak Formation. Other collectors have found it in sandy soil and in red sand. Strother found it in sandy soil over limestone of the Cretaceous Eagle Ford Group. The E. G. Marsh 1524, distributed as V. bipinnatifida, is actually V. ciliata Benth.

Additional citations: OKLAHOMA: Cimarron Co.: C. M. Rogers 4705 (Mi). TEXAS: Bee Co.: R. L. Crockett 7965 (Ld). Bexar Co.: Martinez & Garcia 14 (Au—213884); Ugent 1410 (Ld). Dallas Co.: G. Ramirez 39 (Au—235230). Duval Co.: E. G. Garcia 116 (Au—232909); Minerva Martinez 64 (Au—233113). Frio Co.: Painter, Lucas, & Barkley 14225 (Ld). Kerr Co.: R. L. Crockett 8578 (Ld). Kimble Co.: Demaree 48513 (Ac). Kinney Co.: Strother 263 (Ip). McMullen Co.: Alvarez, Guajardo, Salazar, & McCart 7710 (Au—222199); Paez 112 (Au—222197). Tarrant Co.: McCart 6920 (Au—236817). Tom Green Co.: Ballinger s.n. [April 9, 1961] (Au—220923). Travis Co.: R. L. Crockett 8619 (Ld); R. B. Payton 41 (Ld). MEXICO: Coahuila: E. M. Marsh 2148 (Au—213884). Durango: Powell & Edmondson 961 (Mi). México: Paray 1201 (Ip).

## VERBENA BIPINNATIFIDA var. LATILOBATA Perry

Additional bibliography: Moldenke, *Phytologia* 11: 437, 440, 441, & 491. 1965.

## xVERBENA BLANCHARDI Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 441, 448, & 462. 1965.

## VERBENA BONARIENSIS L.

Additional bibliography: Hocking, *Excerpt. Bot. A.* 6: 534. 1963; Moldenke, *Phytologia* 11: 441--442 & 470 (1965) and 12: 205 & 228. 1965; Moldenke, *Résumé Suppl.* 12: 1. 1965; Rambo, *Pesquis. Bot.* 21: 32--34 & [59]. 1965.

Smith & Klein found this species growing on boggy river margins, in gallery forests, and ruderal in Santa Catarina, Brazil. The Pedersen 6144, distributed as V. bonariensis, actually represents var. conglomerata Briq. The R. L. Crockett 8425, cited below, may actually not have been collected in the county from which it is cited since its label reads "Beaumont--Houston Road". The Mendonca 2973, also cited below, is said to match Rand 365 & 1237 from Southern Rhodesia, and Torre 2239 is said to match Schlechter 2334 at the British Museum.

Rambo (1965) cites Herb. Anchieta 34521, 54316 [Reitz 4993], and 61150 [Mattos s.n.] from Santa Catarina and 603, 1132, 3036, 3044, 3931, 8378 [Emrich s.n.], 8990, 9468, 9718, 10037, 10063, 25693, 26266, 28486, 30933, 32965 [Streider s.n.], 35458 [Ritter s.n.], 36412, 37454 [Emrich s.n.], 38179, 38325, 38408, 38916, 38973, 39451, 39812, 40491, 40749, 41074, 41219, 43510, 43906, 44116, 44251, 44272, 44599, 45281, 49696, 50690 [Sehnen 4155], 41003 [Sehnen 5598], 51381, 51444, 53307, 57305, 59120 [Pivetta 983], 59122 [Pivetta 980], 60782 [Sacco 630], 60929 [Camargo 1625], 61150 [Sacco 666], 62709 [Camargo 2363], 63285 [Sacco 705], 63818 [Sacco 39], and 64044 [Sacco 410] from Rio Grande do Sul, Brazil -- all his own collections except where otherwise indicated. He indicates, however, that numbers 35458 & 38408 have otherwise been identified as var. conglomerata Briq., while 41219 has been identified as V. inamoena Briq. He comments that "V. inamoena.....is at best a variety of V. bonariensis L." He describes the species as "Herbaceous, stiff, coarse, sparingly branched, up to 1 m high", growing on "Dry to somewhat moist, bare or more or less vegetated Campos.....Common over the whole of the Campos area" in Rio Grande do Sul, with a general distribution "From southern USA through the whole of tropical and subtropical America, with several varieties."

Additional citations: LOUISIANA: Washington Par.: Demaree 50721 (Ac). TEXAS: Jefferson Co.: R. L. Crockett 8425 (Ld). BRAZIL: Guanabara: M. C. Vianna 23 [Herb. Cent. Pesq. Florest. 1673] (Ac). Rio de Janeiro: Castellanos 24564 [Herb. Cent. Pesq. Florest. 3179] (Ac). Santa Catarina: Smith & Klein 13968 (Ac). ARGENTINA: Buenos Aires: Boffa s.n. [Berisso, XII/1944] (M); Hicken s.n. [III.1906] (N); Ruiz Huidobro 1666 (M), 1695 (M),

1771 (Mi). PORTUGUESE EAST AFRICA: Lourenço Marques: F. A. Mendonca 2973 (Ul); Torre 2239 (Ul), 7248 (Ul).

VERBENA BONARIENSIS var. CONGLOMERATA Briq.

Additional bibliography: Rambo, *Pesquis. Bot.* 21: 33. 1965; Moldenke, *Phytologia* 11: 442. 1965.

Pedersen found this plant growing in wet ground.

Additional citations: ARGENTINA: Corrientes: Pedersen 6144 (S).

VERBENA BRACTEATA Lag. & Rodr.

Additional bibliography: Rickett, *New Field Book Am. Wild Fls.* 280, fig. 98. 1963; Hocking, *Excerpt. Bot. A.6*: 534. 1963; Sharp & Baker, *Castanea* 29: 183. 1964; Moldenke, *Phytologia* 11: 440, 442--445, 448, 462, & 476. 1965; Cody, *Ind. Sem. Pl. Res. Inst. Ottawa* 1965: 31. 1965.

Additional illustrations: Rickett, *New Field Book Am. Wild Fls.* fig. 98. 1963.

Sharp & Baker (1964) state that this species "seems restricted to the western tier of counties" in Tennessee, but a glance at my distribution map, published in *Phytologia*, volume 8 (1962), shows this to be incorrect. Muhlenbach 1525 was originally identified by the collector as "V. simplex x bracteata", but I do not think that it represents a hybrid, at least insofar as can be seen from the specimen cited below.

Additional citations: VERMONT: Chittenden Co.: A. R. Moldenke 1133 (Ac). MASSACHUSETTS: Bristol Co.: W. R. Taylor 29463 (Mi). INDIANA: Saint Joseph Co.: W. W. Lyon Jr. s.n. [June 29, 1930] (Mi). MISSOURI: Saint Louis: Muhlenbach 54 (Ac), 164 (Ac), 312 (Ac), 1525 (Ac), 1625 (Ac). UTAH: Rich Co.: M. E. Jones s.n. [Alta, Aug. 2, 1879] (Mi). NEVADA: Clark Co.: Clokey 8096 (Mi). COLORADO: Las Animas Co.: C. M. Rogers 4435 (Mi), 4536 (Mi). OKLAHOMA: Cimarron Co.: C. M. Rogers 4668 (Mi); Waterfall 3139 (N). TEXAS: Dawson Co.: Lundell & Lundell 16973 (Ld). Ochiltree Co.: Correll & Ogden 28352 (Ld). Sherman Co.: D. S. Correll 30290 (Ld). ARIZONA: Coconino Co.: Deaver 5847 (Ac).

VERBENA BRACTEATA f. ALBIFLORA (Cockerell) Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.6*: 534. 1963; Moldenke, *Phytologia* 10: 96. 1964.

VERBENA BRASILIENSIS Vell.

Additional bibliography: Hocking, *Excerpt. Bot. A.6*: 534. 1963; Moldenke, *Phytologia* 11: 442, 445--446, & 502. 1965; Moldenke, *Résumé Suppl.* 12: 1. 1965.

Pedersen found this plant growing in sandy rather moist ground formerly plowed and much trampled.

Additional citations: ALABAMA: Shelby Co.: Demaree 50643 (Ac). LOUISIANA: DeSoto Par.: Demaree 50829 (Ac). Plaquemines Par.: Demaree 50745 (Ac). Saint Tammany Par.: Demaree 49994 (Ac), 50769

(Ac). Washington Par.: Demaree 50723 (Ac), 50734 (Ac). BRAZIL: Guanabara: Castellanos 23465 [Herb. Cent. Pesq. Florest. 1741] (Ac), 23599 [Herb. Cent. Pesq. Florest. 2005] (Ac). São Paulo: G. Eiten 1595 (W-2369602). CHILE: Linares: Ricardi 2826 (Ac).

VERBENA CABRERAE Moldenke

Additional synonymy: Verbena cabrera Moldenke ex Hocking, Excerpt. Bot. A.5: 45, sphalm. 1962.

Additional bibliography: Hocking, Excerpt. Bot. A.5: 45. 1962; Moldenke, Phytologia 10: 97. 1964; Moldenke, Résumé Suppl. 12: 12. 1965.

VERBENA CALLIANTHA Briq.

Additional bibliography: Hocking, Excerpt. Bot. A.5: 45. 1962; Moldenke, Phytologia 11: 446. 1965.

VERBENA CAMERONENSIS L. I. Davis

Additional bibliography: Moldenke, Phytologia 11: 446. 1965.

The flowers of this plant are described as "purple" on R. M. King 3983 and J. Rzedowski 7360 and as "lavender" on R. M. King 4249. This same collector describes the plant as "locally abundant along gravel road in partial shade" and as "abundant weeds" in "open sun" in San Luis Potosí, Mexico. Recent collectors have found it in fruit in March and April. Material has been misidentified and distributed in herbaria as V. delticola Small and V. pumila Rydb.

Additional citations: MEXICO: San Luis Potosí: R. M. King 3983 (Mi), 4249 (Mi, W-2365016); J. Rzedowski 7309 (Ip, Ip), 7360 (Ip), 9871 (Ip). Tamaulipas: J. A. de la Cruz s.n. [12.IV. 1961] (Ip).

VERBENA CAMPESTRIS Moldenke

Additional bibliography: Moldenke, Phytologia 11: 446. 1965; Rambo, Pesquis. Bot. 21: 34-35 & [59]. 1965.

Rambo (1965) cites Herb. Anchieta 48312 [Reitz 3348] and 48330 [Reitz 3486] from Santa Catarina, Brazil. He describes the plant as "Prostrate to ascending", growing on "Grassy Campo", and comments that it is "To be expected on the nearby northeastern Highlands" of Rio Grande do Sul, with a general distribution of "So far, SC only".

VERBENA CANADENSIS (L.) Britton

Additional bibliography: Loes., Verh. Bot. Ver. Brand. 53: 75 [Abhandl. 240]. 1912; Hocking, Excerpt. Bot. A.5: 44 (1962) and A.6: 535. 1963; Rickett, New Field Book Am. Wild Fls. 280, fig. 98. 1963; Moldenke, Phytologia 11: 440, 441, 443, 446-450, 453, 455, 485, 486, 488, & 490. 1965.

Additional illustrations: Rickett, New Field Book Am. Wild Fls. fig. 98. 1963.

Additional citations: TEXAS: Chambers Co.: R. L. Crockett 8310



(Ld).

VERBENA CANADENSIS f. CANDIDISSIMA (Haage & Schmidt) Palmer & Steyerl.

Additional bibliography: Moldenke, Phytologia 11: 448 & 450. 1965.

VERBENA CANESCENS H.B.K.

Additional synonymy: Verbena canes H.B.K., in herb.

Additional bibliography: Loes., Verh. Bot. Ver. Brand. 53: 74 [Abhandl. 239]. 1912; H. B. Davis, Life & Works Pringle 21 & 130. 1936; Moldenke, Biol. Abstr. 45: 7026. 1964; Moldenke, Phytologia 11: 450--451, 502, & 503. 1965; Moldenke, Résumé Suppl. 12: 1. 1965.

Dominguez and McCart found this species growing in hard sandy marl silt in Tamaulipas. Graham and Johnston found it at 500 feet altitude in the same state, while Rzedowski encountered it at 2700 meters in San Luis Potosí. The flowers on Rzedowski 4251 are described as "blue-purple", but on Gonzalez Medrano s.n. as "blue". Rzedowski found it growing in abandoned fields.

The R. L. Crockett 8626, cited below as from Blanco County, Texas, may actually have come from Travis County -- its label reads merely "Johnson City--Austin", while 8077, cited from Nuevo León, may actually be from the Federal District, Mexico -- its label reads "Monterrey--Mexico road".

Material has been misidentified and distributed in herbaria under the name V. canes var. roemeriana (Scheele) Perry. On the other hand, the Graham & Johnston 4707 and Strother 264, distributed as V. canescens, are actually var. roemeriana (Scheele) Perry, while Pringle s.n. [Valley, Ortia, Apr. 11, 1887] is V. halei Small. The O. M. Clark 7059, Paxson & Barkley 16M839, and C. L. Smith 221, in part, cited by me in Phytologia 8: 474 (1963) appear to be V. pinetorum Moldenke.

Additional citations: TEXAS: Blanco Co.: R. L. Crockett 8626 (Ld). MEXICO: Nuevo León: R. L. Crockett 8077 (Ld). San Luis Potosí: J. Rzedowski 4251 (Ip), 5278 (Ip), 5401 (Ip), 6165 (Ip), 6347 (Ip), 9571 (Ip). Tamaulipas: Dominguez & McCart 8227 (Au--222208, Au--236267); Gonzalez Medrano s.n. [Rancho El Mezquite, 18.III.1963] (Ip); Graham & Johnston 4707 (Mi).

VERBENA CANESCENS f. ALBIFLORA Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 45: 7026. 1964; Moldenke, Phytologia 11: 451. 1965.

VERBENA CANESCENS var. ROEMERIANA (Scheele) Perry

Additional synonymy: Verbena canes var. roemeriana (Scheele) Perry, in herb.

Additional bibliography: Moldenke, Phytologia 11: 451, 502, & 503. 1965.

Gould found this plant growing "in fertile dark loamy soil on small rocky knoll" in Coahuila, while Salgado encountered it in "sandy soil associated with Larrea, Bouteloua, and Flourencia."

The J. Rzedowski 4251, 5278, 6165, & 6347, originally distributed as this variety, are actually all typical V. canescens H. B.K.

Additional citations: TEXAS: Hidalgo Co.: M. L. Walker 66 (Ld). Kinney Co.: Strother 264 (Ip). MEXICO: Coahuila: Fuentes C. s.n. [20.IX.1959] (Ip); F. W. Gould 10656 (Mi); Salgado s.n. [17.V. 1961] (Ip).

#### VERBENA CAROLINA L.

Additional bibliography: Hook., Trans. Linn. Soc. Lond. Bot. 20: 195. 1847; Loes., Verh. Bot. Ver. Brand. 53: 74 [Abhandl. 239]. 1912; H. B. Davis, Life & Work of Pringle 132. 1936; Moldenke, Biol. Abstr. 36: 4036. 1961; Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 11: 451, 501, & 502, 1965.

The flowers are described as "blue" on Breedlove 8677 & 8699. Weber and Charette found the plant growing on steep slopes of barrancas in Durango. Material has been misidentified and distributed in herbaria as V. officinalis L. On the other hand, the Scora & Scora 2452, distributed as V. carolina, is actually V. litoralis H.B.K.

Andersson (1854) speaks of a "Verbena caroliniana var. foliis incisis, laciniis grosse serratis Hook." [Hooker, however (1847), refers to the plant as "V. polystachya var. foliis incisis segmentis grosse serratis"], based on a Darwin collection from James Island, Galapagos. Just what this specimen may be I do not as yet know, as I have not seen the Darwin collection nor any other from that island. The description does not fit well with any of the seven species of the genus known to me from the Galapagos.

Additional citations: MEXICO: Durango: Weber & Charette 11773 (Mi). Federal District: J. Rzedowski 20096 (Ip). México: M. Abarca 13 (Ip); Cota 45 (Ip); Paray 2449 (Ip); J. Rzedowski 15832 (Ip). Sonora: Gentry, Barclay, & Arguelles 19303 (W-2366189). GUATEMALA: Huehuetenango: Breedlove 8677 (Ac), 8699 (Ac).

#### VERBENA CAROLINA f. ALBIFLORA Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 10: 101. 1964.

Additional citations: EL SALVADOR: Santa Ana: Tucker 1307 (Mi).

#### VERBENA CHEITMANIANA Moldenke

Additional bibliography: Moldenke, Phytologia 11: 452 & 469. 1965.

#### VERBENA CHILENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 11: 452. 1965.

Additional citations: ARGENTINA: Mendoza: R. A. Philippi s.n.

[Mendoza; Herb. Mus. Nac. Hist. Nat. Chile 42446 & 54790; Macbride photos 17417] (W--photo of isotype).

VERBENA CILIATA Benth.

Additional synonymy: Verbena cililata Benth. ex Moldenke, Résumé Suppl. 12: 12, in syn. 1965. Verbena ciliata var. ciliata Wiggins, in herb.

Additional bibliography: Loes., Verh. Bot. Ver. Brand. 53: 75 [Abhandl. 240]. 1912; H. B. Davis, Life & Works Pringle 104. 1936; Moldenke, Résumé Suppl. 12: 1 & 12. 1965; Moldenke, Phytologia 11: 440, 448, 452--453, 490, 491, & 493 (1965) and 13: 181 & 183. 1966.

Johnston found this species growing in pale clay loam at the edge of a field in Coahuila, and Gould found it in gravelly soil of an open field with mesquite cover in Chihuahua. The flowers on S. S. White 2018 are described as "blue", while those on J. Rzedowski 3051 were "purple". The R. L. Crockett 8091 & 8138, cited below, may have been collected in Coahuila or Nuevo León — their labels read "Monterrey—Saltillo Road".

The E. G. Garcia 116, Martinez & Garcia 14, and Paray 1201, distributed as V. ciliata, are actually V. bipinnatifida Nutt.; C. Cantu 69, Clafflin 41, Montemayor 31, and Ramirez, Lopez, & McCart 8763 are V. ciliata var. longidentata Perry; Nápoles s.n. [Agosto 1945] is V. elegans H.B.K.; and Wiggins & Wiggins 16073 is V. gooddingii Briq.

Additional citations: ARIZONA: Coconino Co.: Cureton 44 (Ac). MEXICO: Chihuahua: F. W. Gould 8755 (Mi); S. S. White 2018 (Mi). Coahuila: R. L. Crockett 8138 (Ld); M. C. Johnston 2600 (Au—231801, Mi); E. G. Marsh 1188 (Au—212986), 1524 (Au—213393). Federal District: Paray 1211 (Ip). Hidalgo: J. L. Castro 17 (Ip); Galván s.n. [28.VII.1963] (Ip); González Quintero 349 (Ip); J. Rzedowski 16927 (Ip). Nuevo León: Boke & Lent 37 (Ac); R. L. Crockett 8091 (Ld). Puebla: C. Calderón s.n. [19.IV.1964] (Ip). San Luis Potosí: J. Rzedowski 3051 (Ip, Ip), 4344 (Ip), 8801 (Ip). Tlaxcala: Galicía s.n. [27.V.1962] (Ip).

VERBENA CILIATA var. LONGIDENTATA Perry

Additional bibliography: Moldenke, Phytologia 11: 440, 448, 452, 453, 490, & 491. 1965; Moldenke, Résumé Suppl. 12: 1. 1965.

Material of this variety has been misidentified and distributed in herbaria under the misspelled name V. cililata Benth. The species has been found by recent collectors growing in black clay, red or black soil, marl, sandy silt, Pleistocene gravel, and hard-packed dark gray soil. The Flores call it "abundant in red soil". The Minerva Martinez 64, distributed as this variety, is actually V. bipinnatifida Nutt.

Additional citations: TEXAS: Bee Co.: C. Cantu 69 (Au—235231). Dimmit Co.: R. Acosta 80 (Au—232739); Chaves, Flores, & Hein 74

(Au--233121). Duval Co.: R. Acosta 49 (Au--232661); P. Cabrera 56 (Au--233116); Noyola 21 (Au--233118). Hidalgo Co.: R. L. Crockett 8177 (Ld); Gonzalez & Quesada 33 (Au--233114). Jim Hogg Co.: Raquel Bruno 41 (Au--232314). Jim Wells Co.: Rebecca Bruno 38 (Au--232911); Gamboa & Dohnke 151 (Au--233117). LaSalle Co.: Flores & Flores 126 (Au--232912); A. Sanchez 100 (Au--233111). Maverick Co.: T. Bruni 12 (Au--232631). Medina Co.: Barrera & Laurel 110 (Au--232656). Nueces Co.: Claflin 41 (Au--222195). Webb Co.: Cisneros 23 (Au--233108); Ramirez, Lopez, & McCart 8763 (Au--233107). MEXICO: Tamaulipas: Montemayor 31 (Au--235227).

VERBENA CILIATA var. PUBERA (Greene) Perry

Additional bibliography: Moldenke, *Phytologia* 11: 453, 490, & 491. 1965.

VERBENA CLAVATA Ruiz & Pav.

Additional bibliography: Moldenke, *Phytologia* 11: 453. 1965.

Additional citations: PERU: Ancash: Weberbauer 2768 [Macbride photos 17416] (W--photo). Arequipa: Meyen s.n. [Pampa Grande; Macbride photos 17409] (W--photo). Huánuco: Ruiz s.n. [Macbride photos 17408] (W--photo of cotype).

VERBENA CLOVERAE Moldenke

Additional synonymy: Verbena cloveri var. eilacina Moldenke, *Résumé Suppl.* 12: 12, in syn. 1965. Verbena cloveri var. lilaciana Moldenke, *Résumé Suppl.* 12: 12, in syn. 1965.

Additional bibliography: Moldenke, *Phytologia* 11: 454 & 502. 1965; Moldenke, *Résumé Suppl.* 12: 2 & 12. 1965.

The flowers are described as "blue" on B. L. Turner 4978 and "purple" on Alvarez, Guajardo, Salazar, & McCart 7783. The species has been found in fruit also in February and November and in flower in November. Recent collectors have found it growing in sand, red loam, sand with small gravel, deep sandy soil, hard sandy marl silt, orange-colored sandy loam, loose reddish-orange sand, loose or very loose light-tan sand, and deep orange-colored loose sand. The Flores call it "abundant" in red sand.

Additional citations: TEXAS: Atascosa Co.: B. L. Turner 4978 (Au--229140). Brooks Co.: Painter & Barkley 14315 (Ld). Dimmit Co.: Dickey 61 (Au--233352). Duval Co.: Alvarez, Guajardo, Salazar, & McCart 7657 (Au--222268, Au--222269). Frio Co.: Painter, Lucas, & Barkley 14230 (Ld). Jim Hogg Co.: Alvarez, Guajardo, Salazar, & McCart 7783 (Au--222267); Rebecca Bruno 41 (Au--232671); P. Cabrera 57 (Au--232672). LaSalle Co.: Alvarez, Guajardo, Salazar, & McCart 7614 (Au--222263); Flores & Flores 127 (Au--222469); A. Sanchez 111 (Au--233431); M. de J. Solis 122 (Au--233351). Starr Co.: R. Acosta 74 (Au--233430); P. Cabrera 85 (Au--233428). Webb Co.: Soto, Herrera, & McCart 8100 (Au--

222264). Zapata Co.: Raquel Bruno 31 (Au--232753); Ramos, Sandoval, Salazar, & McCart 7846 (Au--222266); A. Sanchez 87 (Au--233106); M. de J. Solis 79 (Au--232467). MEXICO: Tamaulipas: Dominguez M. & McCart 8232 (Au--222270).

VERBENA CORYMBOSA Ruiz & Pav.

Additional bibliography: Moldenke, *Phytologia* 11: 454. 1965; Rambo, *Pesquis. Bot.* 21: 35 & [59]. 1965.

Smith & Klein found this species growing ruderal, in dry fields, forests, gallery forests, and by small rivers in Santa Catarina, Brazil.

Rambo (1965) cites Herb. Anchieta 50793 [Reitz 3770] & 54307 [Reitz 4970] from Santa Catarina and 34724 & 50505 from Rio Grande do Sul, the two latter being his own collections. He describes the plant as "Erect, vigorous, abundantly branched, leafy, up to 1 m high", growing in "Rather moist places, densely vegetated" in the "Northeastern Highlands only" in Rio Grande do Sul, with a general distribution of "Peru, Chile, Uruguay, RGS, SC."

Additional citations: BRAZIL: Santa Catarina: Smith & Klein 12998 (Ac), 13026 (W--2451610), 13460 (Ac).

VERBENA CUMINGII Moldenke

Additional bibliography: Moldenke, *Phytologia* 9: 202. 1963.

The species has been collected in flower in October.

Additional citations: CHILE: Coquimbo: Martcorena & Matthei 340 (Z).

VERBENA CUNEIFOLIA Ruiz & Pav.

Additional bibliography: Moldenke, *Phytologia* 11: 454 & 484. 1965.

Saunders describes this plant as very free-flowering, to four feet tall, with a strong sweet scent and bluish-white flowers.

Additional citations: PERU: Lima: S. G. E. Saunders 631 (Mi). Department undetermined: Dombey s.n. [Macbride photos 17411] (W--photo).

xVERBENA DEAMII Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 448, 454--455, & 462. 1965.

VERBENA DELTICOLA Small

Additional bibliography: Moldenke, *Phytologia* 11: 448 & 455. 1965.

The R. L. Crockett 8043, cited below, is inscribed "Mercedes--Monterrey Road", so the exact locality of collection is not known. The species has been found by recent collectors in gravel and on unwooded sandy hillsides. Rzedowski 7101 was encountered at 2750 meters altitude and had "purple" flowers.

Material has been misidentified and distributed in herbaria as V. tumidula Perry. The Rzedowski 7309 & 7360, distributed as V.

delticola, are actually V. cameronensis L. I. Davis.

Additional citations: TEXAS: Hidalgo Co.: R. L. Crockett 820 (Ld), 867 (Ld, Ld), 869 (Ld), 8185 (Ld). MEXICO: Coahuila: E. G. Marsh 1822 (Au—219621). Durango: Paray 3243 (Ip). Nuevo León: R. L. Crockett 8043 (Ld); Diaz Luna s.n. [16.IX.1959] (Ip); Dominguez M. & McCart 8271 (Au—222190); J. N. Weaver 10333 (Au—236911). San Luis Potosí: Paray 565 (Ip); J. Rzedowski 7101 (Ip), 10026 (Ip).

#### VERBENA DISSECTA Willd.

Additional bibliography: Troncoso, Darwiniana 13: 468, 470, & 484—485. 1964; Moldenke, Phytologia 11: 455. 1965; Moldenke, Résumé Suppl. 12: 5. 1965; Rambo, Resquis. Bot. 21: 35—37 & [59]. 1965.

Cabrera 10792 is said to have had "rose" flowers.

Rambo (1965) cites Herb. Anchieta 449, 1837, 3034, 3038, 3043, 3939, 4242, 4317, 4362, 4772, 6624, 8486, 8587, 8890, 9165, 27686 [Henz s.n.], 28817 [Gonçalves s.n.], 29591 [Henz s.n.], 30935, 32179, 32328, 32939 [Friderichs s.n.], 34488 [Augusto s.n.], 35629 [Henz s.n.], 35915 [Emrich s.n.], 36414, 42959, 43778, 44104, 48074 [Sehnem 3466], 48478 [Sehnem 2128], 51378, 51652, 56208, 56225, 61723 [Camargo 2567], 62124 [Camargo 2022], 62518 [Camargo 2126], & 62995 [Schlichting s.n.] from Rio Grande do Sul, and 54316 [Reitz 4993] from Santa Catarina, Brazil — all collected by himself except where otherwise indicated. He says that the plant is "Prostrate to ascending, branches abundant, densely matted, rooting at the lower joints, up to 40 cm long", growing in "More or less wet places, preferably sandy meadows and rocky outcrops.....Over the whole of the Campos area, especially on the northeastern Highlands" in Rio Grande do Sul, with a general distribution "From S. Paulo to Uruguay and central Argentina to Patagonia".

Troncoso (1964) says: "Gl. dissecta ha sido citada originariamente de Chile en base a material de Luis Née, recogido a fines del siglo XVIII, durante la expedición Malaspina. Todas las citas posteriores para Chile son referidas a la recolección de Née. Moldenke en su monografía del género Verbena.....la cita de Brasil, Bolivia, Uruguay y Argentina, pero no de Chile. Todo el material estudiado por mí señala un área limitada a Buenos Aires, Uruguay y sul de Brasil. Es muy probable pues, que como en otros casos ya verificados, el ejemplar de Née, supuesto de Chile, haya sufrido un error de etiqueta y corresponda a Argentina o Uruguay. Née efectuó herborizaciones en Montevideo y cruzó por tierra desde Mendoza hasta Buenos Aires (Colmeiro, La Botánica y los botánicos de la Península hispano-lusitana: 183. 1858)....Verbena pulchella f. latilobata.....basada en un solo ejemplar de Montevideo, Uruguay (Berro 4751), presenta más similitud con Gl. dissecta que con Gl. pulchella, debiendo incluirse en la primera.

Difiere notablemente de Gl. pulchella, no sólo por la forma y el tamaño de los segmentos foliares (de 3--7 mm lat. y ápice obtuso), sino por sus caracteres florales y tipo de pubescencia. El tamaño de la flor, del cáliz y de sus dientes, el tamaño y forma de las bracteadas, la pubescencia del pelitos extendidos, no aplicados (no estrigosos) son caracteres coincidentes con Gl. dissecta. El ejemplar tipo de la f. latilobata, que me fue facilitado por el New York Botanical Garden, se diferencia sin embargo de Gl. dissecta típica por las laciniaciones foliares más obtusas, la inflorescencia menos ramificada y la pubescencia más rala. Considero que estas diferencias pueden aceptarse como variaciones normales dentro de la especie." She cites from Brazil Tweedie s.n. [Herb. Hooker] (K), from Uruguay Herter 96556 (Si), Fruchard s.n. [Punta Brava, VII.1876] (P), Commerson s.n. [Montevideo V-1767] (P), and Berro 4751 (N), and from Buenos Aires, Argentina, Nicora 543 (Si), Rodrigo 2339 (Si), Martinez Crovetto 443 (Si), and Boelcke 6342 (Si).

Thanks to the recent very splendid revision of certain Argentine species of this complex by Troncoso (1964), quoted above, the specimens cited by me under V. dissecta in previous installments of these notes should be re-examined. The New York Botanical Garden specimens of Rodrigo 2339 and Herter 96556 — collections which she cites as V. dissecta — are most definitely V. pulchella Sweet. On the other hand, the O'Donnell 4600, cited by me as V. dissecta, seems to be better placed as V. microphylla H.B.K.; Herb. Inst. Miguel Lillo 31745, Herb. Osten 10676, and Jørgensen 1613 & s.n. [26.III.917] are V. parodi (Covas & Schnack) Moldenke; Villafañe 524 is V. pogostoma Klotzsch; Boffa 330, T. Meyer 12290, and Rambo 48914 are V. pulchella Sweet; Chicchi 264, in part, Gallinal, Aragone, Bergalli, Campal, & Rosengurtt 1433 & 1821, Herb. Herter 50882, Herb. Jussieu s.n., and Rosengurtt B. 2116 are V. selloi Spreng.; Rambo 10103 and Rosengurtt PE.5262 are V. subincana (Troncoso) Shimmers; and Herb. Inst. Miguel Lillo 32759, Moreno s.n. [Patagon. 1882/4], Schreiter 1904, Tweedie s.n., and Wilkes Exped. s.n. are V. tenera Spreng.

The Venturi 10301, originally distributed as V. dissecta is V. peraki (Covas & Schnack) Moldenke; Legrand 2717 is V. selloi Spreng.; and Brade 7000, Gallinal, Aragone, Bergalli, Campal, & Rosengurtt PE.5262, Herb. Com. Geogr. & Geol. 3685, Herb. Inst. Bot. S. Paulo 6728 & 15725, Löfgren s.n. [22-9-1887], and Rosengurtt B.3756 are V. subincana (Troncoso) Shimmers.

It is very probable that most of the Uruguayan material which I have cited previously as V. dissecta will prove to be V. selloi. The Berro 4751, however, which Troncoso regards as V. dissecta, seems to me to be far closer in its overall characters to V. pulchella and so I continue to regard it as V. pulchella var. latilobata.

lobata Moldenke.

The Frenguelli 105 & 137, cited below, were erroneously cited by me previously as V. pulchella, while the Boffa 25 and Commerson s.n. were previously cited by me as V. tenera.

Additional citations: BOLIVIA: Province undetermined: Kuntze s.n. [Macbride photos 17424] (W--photo). URUGUAY: Commerson s.n. [Macbride photos 39502, in part] (W--photo). CHILE: Province undetermined: Née s.n. [Herb. Willdenow 11139; Macbride photos 17460] (W--photo of type). ARGENTINA: Buenos Aires: Boffa 25 (N); Commerson s.n. [Buenos Ayres et Monte Video] (N), s.n. [Macbride photos 39502, in part] (W--photo). Entre Ríos: Cabrera 10792 (W-2370642). Santiago del Estero: Frenguelli 105 (N), 137 (N).

## VERBENA DISSECTA f. ALBA Moldenke

Additional bibliography: Moldenke, *Phytologia* 9: 75. 1963.

The Herter 1805 [Herb. Herter 96556], cited by me in previous installments of this work as V. dissecta f. alba, seems definitely to represent typical V. pulchella Sweet instead.

## VERBENA DUSENII Moldenke

Additional bibliography: Moldenke, *Phytologia* 10: 104. 1964.

Additional citations: BRAZIL: Paraná: Saito & Pereira 469/66 (Ac).

## VERBENA EHREBERGIANA Schau.

Additional bibliography: H. B. Davis, *Life & Works Pringle* 49. 1936; Moldenke, *Phytologia* 11: 455--456 & 502. 1965.

J. Rzedowski 5324 & 8058 are said to have had "purple" flowers and were collected along roadsides, blooming in September and November.

Additional citations: MEXICO: San Luis Potosí: J. Rzedowski 5324 (Ip), 8058 (Ip).

## VERBENA ELEGANS H.B.K.

Additional bibliography: H. B. Davis, *Life & Works Pringle* 169. 1936; Moldenke, *Phytologia* 11: 456 & 491 (1965) and 13: 189. 1966.

Rzedowski found this plant growing in Abies religiosa and Juniperus deppeana woods. The Paray 565 and J. Rzedowski 7101 & 10026, originally distributed as V. elegans, are actually V. delticola Small.

Additional citations: MEXICO: Hidalgo: González Quintero 317 (Ip, Ip); Riviello s.n. [Marzo 1946] (Ip); J. Rzedowski 17002 (Ip), 18192 (Ip). Nuevo León: Manning & Manning 53254 (Au-234374). San Luis Potosí: J. Rzedowski 8130 (Ip). Tamaulipas: Martin & Sarabia 1181 (Ip). Vera Cruz: Nápoles s.n. [Agosto 1945] (Ip).



## VERBENA ELEGANS var. ASPERATA Perry

Additional bibliography: Moldenke, *Phytologia* 11: 456 & 491. 1965.

The Paray 3243, distributed as V. elegans var. asperata, is actually V. delticola Small, while Martin & Sarabia 1181 and J. Rzedowski 8130 are typical V. elegans H.B.K.

Additional citations: MEXICO: Coahuila: Fuentes C. s.n. [20.IX. 1959] (Ip). Federal District: Lagúnez 55 (Ip). San Luis Potosí: J. Rzedowski 8817 (Ip), 9685 (Ip). Tamaulipas: R. M. King 4513 (Mi).

## xVERBENA ENGELMANNII Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 456--457 & 467. 1965; Moldenke, *Résumé Suppl.* 12: 12. 1965.

One of the A. R. Moldenke 821 specimens cited by me previously as in my personal herbarium is now in the herbarium of Aarhus University.

## VERBENA EPHEDROIDES Cham.

Additional bibliography: Moldenke, *Phytologia* 11: 457 & 481. 1965; Rambo, *Pesquis. Bot.* 21: 37 & [59]. 1965.

The Eyerdam 10073, originally distributed as V. ephedroides, is actually Diostea scoparia (Gill. & Hook.) Moldenke.

Rambo (1965) cites Herb. Anchieta 30934 from Rio Grande do Sul, Brazil, collected by himself. He says of this plant "Habit: Exactly the same as V. alata Cham.; I cannot see any reasonable difference between the two species." He gives its habitat as "Densely vegetated swamps" in the "Northeastern Highlands (in company of V. alata (!)" and the general distribution as "From Minas Gerais to Uruguay and Misiones."

Additional citations: BRAZIL: São Paulo: N. Santos 5743 [239-17] (Ja). State undetermined: Sellow s.n. [*Brasilia meridionali*; Macbride photos 17415] (W--photo of type).

## xVERBENA FECUNDA Moldenke

Additional bibliography: Moldenke, *Biol. Abstr.* 33: 1215. 1959; Hocking, *Excerpt. Bot. A.5*: 44. 1962; Moldenke, *Phytologia* 10: 106. 1964.

## xVERBENA FERAX Moldenke

Additional bibliography: Moldenke, *Biol. Abstr.* 33: 1215. 1959; Hocking, *Excerpt. Bot. A.5*: 44. 1962; Moldenke, *Phytologia* 11: 457. 1965.

## VERBENA FILICAULIS Schau.

Additional bibliography: Moldenke, *Phytologia* 11: 458. 1965; Rambo, *Pesquis. Bot.* 21: 37--38 & [59]. 1965.

Smith and his associates found this species ruderal in dry open flats bt roads, in campos, low woods, low pastured woods, and on

rock outcrops in Santa Catarina. Rambo (1965) dates Mart., Fl. Bras. 9: 192 as "1951" instead of "1851", and cites Herb. Anchieta 2526, 4825, 8955, 11550 [Buck s.n.], 11579 [Buck s.n.], 30974, 36413, 51000 [Sehnem 5131], 54571, 54642, 56373, 59237, and 62898 [Camargo 3118] from Rio Grande do Sul, Brazil, all collected by himself except where otherwise indicated. He describes the plant as "Weak erect, herbaceous, up to 20 cm high", growing in "Moist places in grassy Campos", and notes that "All collections from the northeastern Highlands" of Rio Grande do Sul, with a general distribution "From Minas Gerais to RGS and Misiones".

Additional citations: BRAZIL: Minas Gerais: Sellow 20 [Macbride photos 17439] (W--photo). Santa Catarina: Smith & Klein 13333 (Ac), 13390 (Ac), 13740 (Ac, Ac), 13870 (Ac); Smith & Reitz 12482 (Ac), 12831 (Ac), 14370 (Ac).

#### VERBENA GLANDULIFERA Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 458. 1965.

Additional citations: ARGENTINA: Santiago del Estero: Pierotti "h" [Tazana, 3/IV/44; Herb. Inst. Miguel Lillo 99460] (Mi).

#### VERBENA GLUTINOSA Kuntze

Additional bibliography: Moldenke, *Phytologia* 11: 458. 1965.

Additional citations: ARGENTINA: Mendoza: Kuntze 2 [Macbride photos 17418] (W--photo of isotype).

#### xVERBENA GONZALEZI Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.6*: 535. 1963; Moldenke, *Phytologia* 11: 458. 1965.

#### VERBENA GOODDINGII Briq.

Additional bibliography: Moldenke, *Phytologia* 11: 458--459, 490, & 491 (1965) and 13: 189. 1966.

Material of this species has been misidentified and distributed in herbaria as "V. ciliata var. ciliata". On the other hand, the R. L. Crockett 820, 867, 869, & 8185, distributed as V. gooddingii, are actually V. delticola Small.

Additional citations: ARIZONA: Coconino Co.: Cureton 21 (Ac); Deaver 5822 (Ac); K. Greenwall 12 (Ac); P. Vogt 21 (Ac). Mohave Co.: Deaver 6135, in part (Ac); Eley 37 (Ac). Yavapai Co.: G. M. Gerrard 84 (Ac). MEXICO: Baja California: Wiggins & Wiggins 16073 (Mi).

#### VERBENA GOODDINGII var. NEPETIFOLIA Tidestr.

Additional bibliography: Moldenke, *Phytologia* 11: 459 & 491. 1965.

Straw & Forman found this plant growing on nearly barren grazed hillsides and washes in sandy-clay stony soil, and describe the corollas as "near deep purplish-pink, 2.5 RP 6/10 in the Munsell system per Nickerson color fan".

Additional citations: ARIZONA: Coconino Co.: R. Pardy 32 (Ac). Mohave Co.: Deaver 6135, in part (Ac). Pima Co.: Hess & Procter s.n. [September 5, 1938] (Z). MEXICO: Chihuahua: Straw & Forman 1614 (M1).

xVERBENA GOODMANI Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 33: 1215. 1959; Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 11: 459. 1965.

VERBENA GRACILESCENS (Cham.) Herter

Additional bibliography: Moldenke, Phytologia 11: 459. 1965; Rambo, Pesquis. Bot. 21: 38 & [60]. 1965.

Rambo (1965) cites Herb. Anchieta 4152, 9176, 30975, 32310, and 59154 [Pivetta 966] from Rio Grande do Sul, and 54326 [Reitz 5006] from Santa Catarina, Brazil — all collected by himself except where otherwise noted. He describes the plant as "Slender, herbaceous up to 50 cm high", growing on "Dry Campos.....Widely scattered: SW and NEH" in Rio Grande do Sul, with a general distribution "From S. Paulo to Uruguay; Paraguay to Patagonia".

Additional citations: ARGENTINA: Corrientes: Lossen 466 (G).

VERBENA GRACILIS Desf.

Additional bibliography: H. B. Davis, Life & Works Pringle 152. 1936; Moldenke, Phytologia 11: 459. 1965.

Gould found this plant growing in open pastures along a moist draw in Chihuahua. The flowers are described as "purple" on J. Rzedowski 3338, 20082, & 20219.

Additional citations: MEXICO: Chihuahua: F. W. Gould 8741 (M1). Federal District: J. Rzedowski 20082 (Ip). México: J. Rzedowski 20219 (Ip). San Luis Potosí: J. Rzedowski 3338 (Ip), 3848 (Ip), 7995 (Ip).

VERBENA GYNOBASIS Wedd.

Additional bibliography: Moldenke, Phytologia 11: 459. 1965.

Recent collectors have found this plant growing at 2100 to 3450 meters altitude, flowering from February to April and in September, fruiting in February and September.

Additional citations: CHILE: Tarapacá: Martcorena, Matthei, & Quezada 42 (Ac); R. A. Philippi s.n. [Sibaya; Macbride photos 17419] (W—photo); Ricardi & Martcorena 4713/1098 (Ac); Ricardi, Martcorena, & Matthei 48 (Ac), 174 (Ac), 387 (Z).

VERBENA HALEI Small

Additional bibliography: Moldenke, Résumé Suppl. 12: 1. 1965; Moldenke, Phytologia 11: 459—460, 475, 501, & 502 (1965) and 13: 187. 1966.

Recent collectors have found this species growing in loose gravel, sandy or loose red silt, dark or black soil, red-brown or

black clay, red or brick-red loose sand, deep orange-colored loose sand, light tan clay, very pale tan loam, hard sandy marl-silt, loose tannish-orange soil, and sandy red soil in thick brush, and in wet places at water's edge. Turner found it growing along with *V. cloverae* Moldenke in Frio County.

The *R. M. King* 4294, originally distributed as *V. halei*, is actually *Centrostachys aspera* (L.) Standl. in the *Amaranthaceae*. *Muhlenbachs* 1423 was identified by the collector as "*V. simplex x urticifolia*", but I do not think that it is a hybrid. On *Parks, Warnock, & Turner* 254 the flowers are described as "small yellow".

Additional citations: MISSISSIPPI: Forrest Co.: *R. L. Crockett* 8671 (Ld). LOUISIANA: Cameron Par.: *R. L. Crockett* 8398 (Ld). TEXAS: Aransas Co.: *D. S. Correll* 28920 (Ld). Bastrop Co.: *B. Rodriguez* 72 (Au--222261). Bexar Co.: *Chavez, Flores, & Hein* 96 (Au--233422). Brooks Co.: *Diana Rodriguez* 40 (Au--233350); *Vela* 12 (Au--233357). Callahan Co.: *N. C. Henderson* 63-197 (Au--222156). Comanche Co.: *N. C. Henderson* 63-600 (Au--227282). Dallas Co.: *O. Sanders* s.n. [Irving, July 14, 1940] (Ld). DeWitt Co.: *Blanch* 17 (Au--222252). Dimmit Co.: *R. Acosta* 81 (Au--233359); *Alvarez, Guajardo, Salazar, & McCart* 7619 (Au--222265); *Chavez, Flores, & Hein* 76 (Au--233418); *Fowler & Vargara* 112 (Au--232648); *H. Torres* 76 (Au--235232). Duval Co.: *Alvarez, Guajardo, Salazar, & McCart* 7671 (Au--222254); *Flores, Chavez, & Hein* 43 (Au--233425); *Gamboa & Dohnke* 130 (Au--232668); *R. Garza* 47 (Au--222253); *A. Trevino* 5 (Au--222260, Ip). Fayette Co.: *Ripple* 51-579 (Au--226884). Frio Co.: *Painter, Lucas, & Barkley* 14226 (Ld); *B. L. Turner* 4990 (Au--229409). Gonzales Co.: *M. de la L. Hernandez* 58 (Au--222250). Hardin Co.: *R. L. Crockett* 1157 (Ld). Hidalgo Co.: *Painter & Barkley* 14428 (Ld). Jim Wells Co.: *P. Cabrera* 101 (Au--233347); *Gamboa & Dohnke* 140 (Au--233421). Jones Co.: *N. C. Henderson* 63-170 (Au--225857). LaSalle Co.: *Bottello* 48 (Au--222257); *Winch* 8 (Au--222259). Lavaca Co.: *Strother* 185 (Ip). McMullen Co.: *Alvarez, Guajardo, Salazar, & McCart* 7624 (Au--222256); *Minerva Martinez* 70 (Au--233356). Sabine Co.: *Demaree* 47384 (Ac), 50807 (Ac). San Patricio Co.: *R. L. Crockett* 8226 (Ld, Ld). Starr Co.: *M. de J. Solis* 149 (Au--233419). Taylor Co.: *N. C. Henderson* 63-387 (Au--225798). Val Verde Co.: *Parks, Warnock, & Turner* 254 (Mi). Webb Co.: *Cisneros* 24 (Au--233345); *B. Gutierrez* 37 (Au--233346); *Soto, Herrera, & McCart* 8101 (Au--222262). Zapata Co.: *Guerra* 40 (Au--232633). High Island: *R. L. Crockett* 8356 (Ld). Mustang Island: *B. H. Warnock* 20999 (Ld). MEXICO: Chihuahua: *Pringle* s.n. [Valley, Ortiz, Apr. 11, 1887] (Mi). Tamaulipas: *Carazos* 50 (Au--235228); *Domínguez M. & McCart* 8183 (Ip), 8249 (Au--222258); *M. Leal* 72 (Au--222251, Ip); *Paulita Martinez* 60 (Au--233420); *Reséndez* 9 (Au--

222248); Zertuche 36 (Au—222255).

VERBENA HASSLERANA Briq.

Additional bibliography: Moldenke, Biol. Abstr. 33: 1215. 1959; Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 11: 460. 1965.

Additional citations: PARAGUAY: Hassler 6464 [Macbride photos 24685] (Mi—cotype, W—photo of cotype).

VERBENA HASSLERANA var. OVATIFOLIA Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 33: 1215. 1959; Hocking, Excerpt. Bot. A.5: 44. 1963; Moldenke, Phytologia 9: 178—179. 1963.

VERBENA HASTATA L.

Emended synonymy: Verbena lanceolata Boldeo ex Moldenke, Alph. List Invalid Names Suppl. 1: 25, in syn. 1947 [not V. lanceolata Beck, 1828, nor Willd., 1825].

Additional bibliography: Deitschman & Pruett, Proc. 17th N. Cent. Weed Control Conf. 1960; Deitschman & Pruett, Weed Abstr. 11 (3): 211. 1962; Rickett, New Field Book Am. Wild Fls. 280, pl. 12. 1963; Moldenke, Biol. Abstr. 45: 3136. 1964; Moldenke, Phytologia 11: 441, 443, 455, 460—466, 471, 476, 486, 488, & 490. 1965; Cody, Ind. Sem. Pl. Res. Inst. Ottawa 1965: 31. 1965; Moldenke, Biol. Abstr. 46: 3616. 1965; Moldenke, Résumé Suppl. 12: 1. 1965; L. M. Reid, Park Management Serv. Bull. 5: 5 & 48. n.d.

Additional illustrations: Rickett, New Field Book Am. Wild Fls. pl. 12. 1963.

Deitschman & Pruett (1960) report eradicating this plant by use of 2,4D and cultivating between rows of Pinus, Juglans, and Populus. MacKeever reports this his no. MV.400 had very open spikes with dark-blue flowers, while MV.402a, found at the edge of a brackish marsh, had the flower-spikes dense at the apex and the corollas purple.

The M. E. Jones 1487, distributed originally as V. hastata, is actually var. scabra Moldenke, while Heidenreich 292 [7138] is xV. rydbergii Moldenke.

Additional citations: MAINE: Franklin Co.: A. R. Moldenke 1125 (Ac). Somerset Co.: A. R. Moldenke 1124 (Ac). NEW HAMPSHIRE: Carroll Co.: A. R. Moldenke 1127 (Ac). Merrimack Co.: A. R. Moldenke 1129 (Ac). VERMONT: Bennington Co.: A. R. Moldenke 1135 (Ac). Chittenden Co.: A. R. Moldenke 1138 (Ac). Essex Co.: A. R. Moldenke 1134 (Ac). Franklin Co.: A. R. Moldenke 1080 (Ac). Lamoille Co.: A. R. Moldenke 1077 (Ac), 1139 (Ac). Orleans Co.: A. R. Moldenke 1136 (Ac). Rutland Co.: A. R. Moldenke 1137 (Ac). Washington Co.: A. R. Moldenke 1076 (Ac). Windsor Co.: A. R. Moldenke 1131 (Ac). MASSACHUSETTS: Martha's Vineyard: MacKeever MV. 402 (N), 402a (N). NEW YORK: Saratoga Co.: H. N. Moldenke 22640 (Ac). Tompkins Co.: Niederhausen s.n. [Slaterville, 7/8/39] (Ip).

Washington Co.: A. R. Moldenke 1071 (Ac). INDIANA: Porter Co.: M. W. Lyon Jr. s.n. [Mineral Springs, VIII.3.1924] (Mi). KENTUCKY: Bath Co.: Plymale s.n. [July 16, 1939] (Mi). Powell Co.: F. T. McFarland 4410 (Mi). MISSOURI: Saint Louis: Muhlenbachs 1035 (Ac), 1307 (Ac), 2402 (Ac). COLORADO: Las Animas Co.: C. M. Rogers 4981 (Mi).

VERBENA HASTATA f. CAERULEA Moldenke

Additional bibliography: Moldenke, Phytologia 11: 465. 1965; Moldenke, Biol. Abstr. 46: 3616. 1965.

It is very possible that MacKeever MV.400, cited previously under V. hastata, represents this form since the collector notes that its flowers were "dark-blue" rather than purple.

VERBENA HASTATA f. ROSEA Cheney

Additional bibliography: Moldenke, Phytologia 11: 465--466. 1965; Moldenke, Résumé Suppl. 12: 1. 1965.

VERBENA HASTATA var. SCABRA Moldenke

Additional bibliography: Moldenke, Phytologia 11: 462 & 466. 1965.

Additional citations: UTAH: Utah Co.: M. E. Jones 1487 (Mi). TEXAS: Hemphill Co.: Correll & Correll 30034 (Ld).

VERBENA HAYEKII Moldenke

Additional bibliography: Moldenke, Phytologia 11: 466. 1965.

Additional citations: PERU: Junín: Weberbauer 2573 [Macbride photos 17442] (W--photo of type).

VERBENA HERTERI Moldenke

Additional bibliography: Moldenke, Phytologia 9: 286--288. 1963; Rambo, Pesquis Bot. 21: 38 & [60]. 1965.

Smith & Reitz encountered this plant on campos along boggy brooks at 1400 meters altitude in Santa Catarina, Brazil. Rambo (1965) cites his collection in Herb. Anchieta 26125 from Rio Grande do Sul and describes the plant as "Prostrate, rooting at the lower joints", growing on "Dry, grassy Campos" on the "Southwestern plains only" in that state, with a general distribution of "RGS and Uruguay".

Additional citations: BRAZIL: Santa Catarina: Smith & Reitz 14204 (Z).

VERBENA HIRTA Spreng.

Additional bibliography: Moldenke, Phytologia 11: 466. 1965; Rambo, Pesquis. Bot. 21: 38--39, 54, & [60]. 1965.

Rambo (1965) cites Herb. Anchieta 6614, 30456 [Reitz 1043], 32227, 36421, 45518, 54061, 54594, & 56783 from Rio Grande do Sul and 36896 [Hatschbach 599] from Paraná, Brazil -- all collected by himself except where otherwise indicated. He admits, however, that no. 36421 has been identified as var. gracilis

Dusén. He describes the species as a "Small shrub, up to 30 cm high, more or less hairy", growing "In more or less moist, grassy Campos" in the "Northeastern Highlands only" in Rio Grande do Sul, with a general distribution "From Bahia to RGS and Misiones".

Additional citations: BRAZIL: Minas Gerais: N. Santos 5704 (Ja). Paraná: Dombrowski, Saito, & Pereira 808/598/192 (Ac); Reiss 16a (Mi); Smith & Klein 14936 (Ac); Smith, Klein, & Hatschbach 14562 (W--2451599). Santa Catarina: Smith & Klein 13024 (Ac), 13733 (W--2451607), 13885 (Ac). São Paulo: Leite 3373 (G). CULTIVATED: Germany: Otto s.n. [Macbride photos 17420] (W--photo).

VERBENA HIRTA var. GRACILIS Dusén

Additional bibliography: Moldenke, *Phytologia* 10: 110. 1964; Rambo, *Pesquis. Bot.* 21: 39. 1965.

Smith and his associates encountered this plant in gallery forests and bogs, as well as on dry sunny banks, flowering fruiting in December. The altitude given on the label of one of the Smith & Klein collections is "12000 m.", obviously a typographic error for "1200 m."

Additional citations: BRAZIL: Paraná: Dombrowski 1252 [Herb. Inst. Def. Pat. Nat. 9446] (Ac), 1356 [Herb. Inst. Def. Pat. Nat. 9444] (Ac); Dombrowski, Saito, & Pereira 946/770/289 (Ac). Santa Catarina: Smith & Klein 13394 (W--2451609), 13554 (Ac).

VERBENA HISPIDA Ruiz & Pav.

Additional bibliography: Moldenke, *Phytologia* 11: 466 & 484. 1965.

Additional citations: PERU: Huánuco: H. Ruiz 1/34 [Macbride photos 29686] (W--photo of type), s.n. [Peruvia et Chili; Macbride photos 17555] (W--photo of isotype). CHILE: Tarapacá: Pfister s.n. [Termas de Mamifla, 12-I-1950] (Ac).

VERBENA HOOKERIANA (Covas & Schnack) Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 466. 1965.

The Chicchi 264 collection is a mixture of this species and V. selloi Spreng., not V. dissecta as stated by me previously.

Additional citations: ARGENTINA: La Rioja: G. Dawson 3363 (Ip).

VERBENA HUMIFUSA Cham.

Additional bibliography: Moldenke, *Phytologia* 11: 466. 1965; Rambo, *Pesquis. Bot.* 21: 39, 58, & [60]. 1965.

Rambo (1965) cites Herb. Anchieta 30633, 32545 [Henz s.n.], 43261, 43845, 48804, 48911, 48914, 49013, 51272 [Emrich s.n.], 51273, & 57297 from Rio Grande do Sul, Brazil -- all collected by himself except where otherwise noted. He describes the plant as "Vigorous, prostrate, branches from a rootstock, up to 40 cm long", growing in "Dry, grassy Campos". He notes "All collections from the northeastern Lowlands and sea coast in that state, and

gives the general distribution as "From Paraguay and Paraná to RGS and Uruguay".

Additional citations: BRAZIL: State undetermined: Sellow s.n. [Campos de Brasil meridional; Macbride photos 17421] (W--photo of cotype).

xVERBENA HYBRIDA Voss

Additional synonymy: Verbena hybrida L. apud Rambo, Pesquis. Bot. 21: 58, sphalm. 1965.

Additional bibliography: Brilmayer, All About Vines 350. 1962; A. Webster, Carib. Gard. 18, 76, 129, & 138. 1964; Altman & Dittmer, Biol. Data Book 494. 1964; Moldenke, Biol. Abstr. 45: 5377. 1964; Moldenke, Phytologia 11: 456 & 466--467. 1965; Rambo, Pesquis. Bot. 21: 58. 1965; Anon., Ind. Sem. Stich. Konink. Rotterdam. Dierg. [6]. 1965; Anon., Delect. Sem. Grad. Bot. Univ. Bucarest. 1964: 35. 1965; Raymond, Ann. '65 Result. Jard. d'Essai Jard. Bot. Montréal 85. 1965; Florists' Rev. April 15. 1965; Neal, In Gard. Hawaii, new rev. ed., 722. 1965; Moldenke, Phytologia 13: 180. 1966.

Altman & Dittmer (1964) report that this plant is attacked by the chrysanthemum nematode (Aphelenchoides ritzema-bosi) in both North America and Europe. This nematode attacks about thirty other kinds of plants, including chrysanthemum, larkspur, phlox, strawberry, and zinnia. It is a vagrant endoparasite of the buds and foliage. Symptoms are crumpled distorted leaves and leaf-spots. Control is effected by the hotwater treatment of the dormant plants and by parathion sprays.

Brilmayer (1962) says: "hortensis -- verbena hybrids -- The well-known garden verbenas, with trailing stems, soft hairy leaves, and clusters of vivid flowers sometimes with sparkling white eye. Seeds are usually listed as 'trailing verbenas' in contrast with dwarf or bushy types, or as hybrida gigantea in a selection of red, white, pink or salmon shades, or mixtures."

Raymond (1965) lists "Candy Stripe", "Dark Blue", "Sultan's Blue", and "Mid-Blue" as Dwarf Compacts and "Rose-pink as Semi-Double, all cultivated in Canada. The Florists' Rev. (1965) lists many varieties offered to the trade by Buckley & Son and by Schlosser & Sons [both of Springfield, Illinois], Wamego Floral Company [of Wamego, Kansas], and Zehm Greenhouses [of Huntington, Indiana].

In a letter to me from Jerome H. Kantor, Director of Research for the W. Atlee Burpee Company, Philadelphia, Pennsylvania, he says: "We are glad to know of your interest in verbenas and are asking Mr. Ellwood Pickering, who is doing our flower research at Floradale Farms, to send you some information on the origin of the new semi-double verbena, Miss Susie. The original semi-double plant was discovered as a mutant and has been hybridized to introduce this character into otherwise desirable types.....I might point out that two of the varieties we presently offer, Floradale Beauty and Lavender Glory, are the results of incomplete dominance. In the case of the Lavender it has not been possible to produce a



true breeding strain of this color by inbreeding. The Lavender is a heterozygous form, the dominant being purple and the recessive being white. Theoretically, it should be possible to produce a good lavender by making an  $F_1$  hybrid, but so far we have been unable to do this on a commercial basis.

"The bright salmon of Floradale Beauty is similar. In each case we have felt that the color we were after was good enough and desirable enough so that our customers would not mind having some of the homozygotes show up in the planting. As a matter of fact, a lavender mixture can be made by planting these two, Lavender Glory and Floradale Beauty, as it includes practically all of the verbena colors with the exception of blue."

Mr. Pickering, in his letter to me of March 11, 1965, says: "There is little that I can add to what Mr. Kantor has told you.. about Miss Susie Verbena. It was as he said a mutant in a trial row of Floradale Beauty. I might add that Miss Susie has a pure salmon pink color while Floradale Beauty....is a variable shade of nearly the same color. The extra petals are very recessive when crossed with the regular type. Only one or two will appear in a population of several hundred  $F_2$  plants. It is also interesting to note that the foliage of these plants also has extra projections and curls. This is undesirable as some gardeners may think it is a disease. We hope to have several more colors in this type on the market soon."

Additional citations: CULTIVATED: Mexico: Madrigal s.n. [11. I.1964] (Ip).

#### xVERBENA ILLICITA Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 467. 1965.

One each of the A. R. Moldenke 833 & 975 collections cited by me previously as in my personal herbarium are now in the herbarium of Aarhus University.

#### VERBENA INAMOENA Briq.

Additional bibliography: Moldenke, *Phytologia* 10: 111. 1964; Rambo, *Pesquis. Bot.* 21: 33. 1965; Moldenke, *Phytologia* 13: 184. 1966.

Rambo (1965) cites Herb. Anchieta 41219, collected by himself in Rio Grande do Sul, Brazil, as having been identified as this species, but comments that "V. inamoena....is at best a variety of V. bonariensis L." and so he cites it under the latter species.

#### VERBENA INCISA Hook.

Additional bibliography: Moldenke, *Phytologia* 11: 467--468. 1965; Anon., *Ind. Sem. Stich. Konink. Rotterdam. Dierg.* [6]. 1965; Moldenke, *Résumé Suppl.* 12: 5. 1965; Rambo, *Pesquis. Bot.* 21: 58. 1965.

Additional citations: BRAZIL: Rio de Janeiro: Strang 580 [*Herb. Cent. Pesq. Florest.* 3336] (Ac).

#### xVERBENA INTERCEDENS Briq.

Additional bibliography: Moldenke, *Phytologia* 11: 468. 1965.

Additional citations: PARAGUAY: Hassler 6149 [Macbride photos 17422] (W--photo of cotype).

*VERBENA INTERMEDIA* Gill. & Hook.

Additional bibliography: Moldenke, *Phytologia* 11: 468. 1965; Rambo, *Pesquis. Bot.* 21: 35 & [59]. 1965.

Smith & Reitz found this plant ruderal and in dry woods, at 1200--1300 meters altitude.

Rambo (1965) cites Herb. Anchieta 4386 & 34723 from Rio Grande do Sul, Brazil, collected by himself, but comments "Probably nothing else but a poorly developed specimen of V. bonariensis L." He describes the plant as "Erect, stiff, up to 50 cm high", growing in "More or less wet, grassy Campos" in the "Northeastern Highlands" of that state, with a general distribution of "RGS, Uruguay, Argentina Mesopotamia".

Additional citations: BRAZIL: Santa Catarina: Smith & Reitz 14330 (Ac). ARGENTINA: Mendoza: Wilczek 56 [Macbride photos 24683] (W--photo).

*VERBENA JORDANENSIS* Moldenke

Additional bibliography: Moldenke, *Phytologia* 9: 385--386. 1963.

Smith & Reitz found this species ruderal in dry open flats by roads, at 700--900 meters altitude, flowering in October.

Additional citations: BRAZIL: Santa Catarina: Smith & Reitz 12479 (Ac). São Paulo: Leite 3474 (G--isotype).

*VERBENA LACINIATA* (L.) Briq.

Additional bibliography: Moldenke, *Biol. Abstr.* 35: 1688. 1960; Hocking, *Excerpt. Bot. A.* 4: 592. 1962; Troncoso, *Darwiniana* 13: 469. 1964; Moldenke, *Phytologia* 11: 468--469 & 483 (1965) and 12: 225 & 230. 1965; Rambo, *Pesquis. Bot.* 21: 58. 1965.

Thanks to the recent fine revisionary work on some of the Argentine members of this species complex done by Troncoso (1965), it appears that the Herb. Herter 79174, 79227, & 96600, Herter 181c & 181i, and Herter & Strahl 181, originally distributed as V. erinoides Lam. and cited by me previously as V. tenera Spreng., are actually V. selloi Spreng., while the Herb. Inst. Miguel Lillo 32759, Schreiter 1904, Tweedie s.n., and Wilkes Exped. s.n., also originally so distributed but cited by me as V. dissecta Willd., are actually V. tenera Spreng.

Additional citations: ECUADOR: Chimborazo: Fagerlind & Wibom 799 (Mi).

*VERBENA LASIOSTACHYS* Link

Additional bibliography: Moldenke, *Biol. Abstr.* 45: 5377 & 7026. 1964; Moldenke, *Phytologia* 11: 469. 1965.

*VERBENA LILACINA* Greene

Additional bibliography: Moldenke, *Phytologia* 11: 469. 1965;

Moldenke, Résumé Suppl. 12: 12. 1965.

Additional citations: CEDROS ISLAND: Haines & Hale s.n. [9 March 1939] (Mi); R. Moran 10698 (Mi).

VERBENA LINDMANII Briq.

Additional bibliography: Moldenke, Phytologia 11: 469. 1965; Rambo, Pesquis. Bot. 21: 41--42 & [60]. 1965.

Rambo (1965) cites Herb. Anchieta 437, 4852, 6739, 8360 [Emrich s.n.], 10034, 11638 [Buck s.n.], 27121, 27291, 29211, 30978, 32011 [Reitz 874], 33140, 33809 [Emrich s.n.], 34722, 37731, 37777, 39352, 39444, 39621, 39697, 40398, 41059, 51413, 51557, 53037, 57071, 59160 [Pivetta 972], & 61584 [Camargo 2683] from Rio Grande do Sul, 49646 from Santa Catarina, and 50832 [Hatschbach 1181] from Paraná, Brazil -- all collected by himself except where otherwise noted. He describes the plant as "Erect, wiry, more or less leafless, a few branches from a woody rootstock, up to 75 cm high", growing on "Very dry, open Campos..... Apparently over the whole of the Campos area" in Rio Grande do Sul, with a general distribution "From Paraná to RGS and Misiones".

VERBENA LIPOZYGIOIDES Walp.

Additional bibliography: Moldenke, Biol. Abstr. 45: 7026. 1964; Moldenke, Phytologia 9: 480 & 501--502. 1964.

Additional citations: CHILE: Province undetermined: Besser 136 [Macbride photos 17427] (W--photo of logotype).

VERBENA LITORALIS H.B.K.

Emended synonymy: Verbena lanceolata Willd. ex Spreng. in L., Syst. Veg., ed. 16, 2: 748. 1825 [not V. lanceolata Beck, 1828, nor Bolbo, 1947]. Verbena nudiflora Nutt. ex Turcz., Bull. Soc. Nat. Mosc. 36 (2): 195--196. 1863 [not V. nudiflora L., 1808].

Additional & emended bibliography: N. J. Anderss., Galap. Veg. 200. 1854; N. J. Anderss., Vet. Akad. Handl. Stockh. 1853: 200. 1855; Turcz., Bull. Soc. Nat. Mosc. 36 (2): 195--196. 1863; H. B. Davis, Life & Works Pringle 132. 1936; Hocking, Excerpt. Bot. A. 4: 592. 1962; Soukup, Biota 5: 194. 1964; Moldenke, Biol. Abstr. 45: 6658, 7026, & 8025. 1964; Neal, In Gard. Hawaii, new rev. ed., 721--722. 1965; Rambo, Pesquis. Bot. 21: 42--44 & [60]. 1965; Moldenke, Phytologia 11: 442, 469--470, & 501 (1965), 12: 205 (1965), and 13: 188. 1966.

Recent collectors have encountered this plant in much disturbed woods of Quercus, Liquidambar, and Clethra and abundant on exposed lava on Quaternary continental deposits. Raven & Breedlove found it growing on slopes with Quercus, Pinus, and Liquidambar, at 5400 feet altitude. They describe the flowers on their no. 19907 as "pale-blue"; Tucker 990 had "lavender" flowers, while his 1308 had "corolla-throat pale-lavender or white, lobes lavender"; Ricardi & Marticorena 3629/17 had "blue"

flowers. A common name for the plant in British Honduras is "verbena de montana", while Neal (1965) records "ha'uowi", "ha'uo'i", "oi", and "owi" from Hawaii and Israel records "puringa" from Easter Island.

The Pedersen 6417, originally distributed as V. litoralis, is actually V. brasiliensis Vell. Andersson (1854) cites a C. Darwin s.n. from Chatham Island in the Galapagos. Rambo (1965) cites Herb. Anchieta 436, 2988, 3795, 4171, 6548, 6556, 6570, 8461, 8867, 9086, 9752, 11254 [Buck s.n.], 25164 [Theissen s.n.], 25791, 26005, 26691 [Friderichs s.n.], 28223, 29245, 29752 [Bruxel s.n.], 32190, 32646 [Henz s.n.], 35346 [Henz s.n.], 38055, 38193, 38254, 38581, 38723, 39911, 39997, 40188, 44762, 44813, 45117, 45339, 46069, 46416, 48067, 48657, 49506, 49723, 50174 [Emrich s.n.], 50554 [Sehnm 4470], 51449, 53120, 55075 [Camargo 90], 59429 [Camargo 959], 60406 [Camargo 621], 60703, 61623 [Camargo 2727], 62112 [Camargo 2014], 62500 [Camargo 2145], 63255 [Spies s.n.], 63272 [Sacco 827], 63275 [Sacco 855], 64057 [Sacco 259] from Rio Grande do Sul, 53631 from Paraná, and 31416, 60152, 61117 [Mattos s.n.], & 61142 [Mattos s.n.] from Santa Catarina, Brazil -- all collected by himself except where otherwise indicated. He describes the plant as "Herbaceous, more or less lignified at the base, moderately branched, up to 1 m high....Apparently not native, always on altered soil....Very common over the whole of the cultivated area" in Rio Grande do Sul, with a general distribution "From southern USA to Uruguay, central Argentina, Chile and Juan Fernandes."

Additional citations: MEXICO: Chiapas: Raven & Breedlove 19907 (Ac). México: Lagúnez 87 (Ip). Michoacán: Hinton & al. 13956 (Mi). San Luis Potosí: R. M. King 4432 (Mi); J. Rzedowski 8137 (Ip). Vera Cruz: J. Rzedowski 18943 (Ip); Scora & Scora 2452 (Ip). GUATEMALA: El Petén: Contreras 2635 (S). BRITISH HONDURAS: Gentle 7119 (S). EL SALVADOR: Chalatenango: Tucker 990 (Mi). Santa Ana: Tucker 1308 (Mi). BRAZIL: Rio de Janeiro: Castellanos 24514 [Herb. Cent. Pesq. Florest. 3206] (Ac), 24562 [Herb. Cent. Pesq. Florest. 3177] (Ac). CHILE: Atacama: Ricardi & Marticorena 3629/17 (Ac). Colchagua: Ricardi s.n. [Cerros de Nancagua, 11-I-1951] (Ac). Tarapacá: Ricardi 3352 (Ac). EASTER ISLAND: Israel s.n. [24.V.1956] (Ac).

#### VERBENA LITORALIS var. ALBIFLORA Moldenke

Additional bibliography: Moldenke, *Phytologia* 10: 75--76. 1964; Soukup, *Biota* 5: 194. 1964.

#### VERBENA LOBATA Vell.

Additional bibliography: Moldenke, *Phytologia* 11: 470. 1965; Rambo, *Pesquis. Bot.* 21: 44--46 & [60]. 1965.

Smith & Reitz found this plant growing on cliffs in Santa Ca-

tarina, Brazil.

Rambo (1965) cites Herb. Anchieta 2293, 2782, 2816, 4295, 4479, 4482, 4505, 8663, 8881, 8984, 29983, 30977, 32116, 32118, 32302, 32303, 32424, 32939 [Friderichs s.n.], 34726, 35193, 35725 [Henz s.n.], 36418, 38742, 40268, 44832, 44988, 45318, 45640, 45682, 47724 [Sehnem 3958], 48084, 48588 [Sehnem s.n.], 50185 [Emrich s.n.], 51130, 51405, 51462, 51912, 51949, 52084, 52817 [Emrich s.n.], 53791, 55076, 55965, 56762, 56821, 56927 [Emrich s.n.], 61817 [Camargo 2297], 62729 [Camargo 2332] from Rio Grande do Sul, 31861 [Reitz 1215], 49570, 49605, 50968 [Sehnem 5449], 60070, & 61145 [Mattos s.n.] from Santa Catarina, and 35960 [Hatschbach 403] & 64104 [Hatschbach 4306] from Paraná, Brazil -- all collected by himself except where otherwise designated. He describes the plant as "Ascending to erect and leaning to the neighbors, up to 1 m high", growing in "Wet to swampy Campos thickets" in the "Northeastern quadrant only, very common on the Highlands" in Rio Grande do Sul, with a general distribution "From Minas Gerais to RGS and Misiones."

Additional citations: BRAZIL: Paraná: Saito & Pereira 506/103 (Ac). Santa Catarina: Smith & Reitz 14178 (W--2451602). State undetermined: Sellow s.n. [Brasilia; Macbride photos 34348] (W--photo).

VERBENA LOBATA var. GLABRATA Moldenke

Additional bibliography: Moldenke, Phytologia 10: 82. 1964; Rambo, Pesquis. Bot. 21: 44. 1965.

Rambo (1965) cites Herb. Anchieta 2816, collected by himself in Rio Grande do Sul, Brazil, as V. lobata Vell., but admits that it has been identified as var. glabrata.

VERBENA LONGIFOLIA Mart. & Gal.

Additional bibliography: Turcz., Bull. Soc. Nat. Mosc. 36 (2): 196. 1863; Moldenke, Biol. Abstr. 36: 4036. 1961; Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 11: 470. 1965.

Floyed & Ryan describe this plant as a "shrub to 4 ft. tall", with white corollas, growing in semi-shade on rocky clay loam, and flowering in June. Rzedowski encountered it at 100 meters altitude, flowering and fruiting in February.

Additional citations: MEXICO: Guerrero: Floyed & Ryan 84 (Mi). San Luis Potosí: J. Rzedowski 9754 (Ip).

VERBENA LONGIFOLIA f. ALBIFLORA Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 36: 4036. 1961; Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Phytologia 10: 85. 1964.

VERBENA LUCANENSIS Moldenke

Additional bibliography: Soukup, Biota 5: 194. 1964; Moldenke, Phytologia 10: 85--86. 1964.

## VERBENA MACDOUGALII Heller

Additional bibliography: Moldenke, Biol. Abstr. 45: 6658 & 8025. 1964; Moldenke, Phytologia 11: 462 & 470--471. 1965; Moldenke, Résumé Suppl. 12: 2. 1965.

Additional citations: ARIZONA: Apache Co.: Deaver 6412 (Ac), 6447 (Ac).

## VERBENA MALMII Moldenke

Additional bibliography: Moldenke, Phytologia 10: 121--122. 1964; Rambo, Pesquis. Bot. 21: 58. 1965.

## VERBENA MARITIMA Small

Additional bibliography: Moldenke, Phytologia 11: 471. 1965.

Demaree found this plant growing on sandy canal banks.

Additional citations: FLORIDA: Brevard Co.: Demaree 50170a (Ac). Indian River Co.: Demaree 49422 (Ac).

## VERBENA MARRUBIOIDES Cham.

Additional bibliography: Moldenke, Phytologia 11: 471. 1965; Rambo, Pesquis. Bot. 21: 46 & [60]. 1965.

The Reiss 16a, originally distributed as V. marrubioides, is actually V. hirta Spreng.

Rambo (1965) cites Herb. Anchieta 451, 27065, 27293, 29028, 29105, 30629, 37698, 43689, 43843, 44156, 48879, 57298, & 62095 [Camargo 1836] from Rio Grande do Sul, and 31723, 31902 [Reitz 1281], & 21906 [Reitz 1297] from Santa Catarina, Brazil — all collected by himself except where otherwise indicated. He describes the plant as "Prostrate, branches radiating from a woody rootstock, up to 40 cm long", growing in "Very dry, grassy Campos" in Rio Grande do Sul. He notes that "All collections from the northeastern Lowlands and sea coast" in that state, and gives the general distribution of the species "From Paraná to Uruguay; Peru to northern Argentina."

Additional citations: BRAZIL: Paraná: Dombrowski 683 (Z); Dombrowski, Saito, & Pereira 815/605/199 (Ac). State undetermined: Sellow s.n. [Bras. merid.; Macbride photos 17429] (W--photo of type).

## VERBENA MEGAPOTAMICA Spreng.

Additional bibliography: Rambo, Pesquis. Bot. 21: 46--47. 1965; Moldenke, Phytologia 11: 471. 1965.

Rambo (1965) places V. phlogiflora Cham. in the synonymy of this species on page 46 of his work, but keeps it as distinct on pages 49--50. He cites for V. megapotamica Herb. Anchieta 4336, 4561, 8513, 8781, 8999, 9388, 9767, 11535 [Buck s.n.], 30980, 34729, 52102, 53458, 54947, 56659, 59127 [Pivetta 977], & 59244 from Rio Grande do Sul, and 60153 from Santa Catarina, Brazil — all collected by himself except where otherwise indicated. He describes the plant as "Herbaceous, vigorous, erect or recumbent,

with large, and showy flowers in dense inflorescences", growing in "Wet to swampy thickets in the Campos area" of Rio Grande do Sul, specifically "Northern Campos, especially in the Northeast", with a general distribution "From Minas Gerais to Uruguay and Buenos Aires."

Additional citations: BRAZIL: Rio Grande do Sul: Sellow 13 [Macbride photos 17438, in part] (W--photo of type). State undetermined: Sellow s.n. [Brasil meridionali; Macbride photos 17438, in part] (W--photo).

VERBENA MENDOCINA R. A. Phil.

Additional bibliography: Moldenke, *Phytologia* 11: 471. 1965.

Additional citations: ARGENTINA: Mendoza: R. A. Philippi s.n. [1868; Macbride photos 17430] (W--photo of isotype).

VERBENA MENTHAEFOLIA Benth.

Additional bibliography: Turcz., *Bull. Soc. Nat. Mosc.* 36 (2): 197. 1863; Moldenke, *Phytologia* 11: 471--472 & 502. 1965.

Powell & Edmondson describe the plant as "infrequent" in Sinaloa, Mexico. Recent collectors have found it growing in secondary or xerophilous matorral, ruderal, and in cultivated soil.

Additional citations: MEXICO: Federal District: S. Espinosa s.n. [Ciudad Universitaria, X.1954] (Ip). Hidalgo: I. M. C. Fonseca s.n. [4.VIII.1963] (Ip); L. G. Quintero s.n. [7.IX.63] (Ip). México: Galicia s.n. [22.VIII.1952] (Ip); Lachica s.n. [23.VI.1963] (Ip); Madrigal S.725 (Ip); Paray 2956 (Ip); Villamar C. s.n. [6.IX.1964] (Ip). Sinaloa: Powell & Edmondson 914 (Mi). Vera Cruz: Dodds 91 (Mi).

VERBENA MICROPHYLLA H.B.K.

Additional bibliography: Soukup, *Biota* 5: 194. 1964; Moldenke, *Phytologia* 11: 472, 484, & 485 (1965) and 12: 118 & 288. 1965.

Thanks to the recent fine revisionary work done by Troncoso (1965) on certain Argentine member of this species complex, it appears that the Herb. Inst. Miguel Lillo 32795 and Schreiter 6643, originally distributed as V. microphylla and cited by me previously as V. tenera, are actually V. selloi Spreng., while the Carette s.n. [Monte Hermoso, 1916], cited by me as V. microphylla, is actually V. tenera Spreng. The O'Donell 4600, cited below, was previously erroneously cited by me as V. dissecta Willd., while A. T. Hunziker 6471 and T. Meyer 2409 were previously cited by me as V. tenera Spreng.

The flowers on T. Meyer 2409 are described as "purple", while those on A. T. Hunziker 6471 were "violet". Hunziker found the species "frequent along roadsides" in Córdoba.

Additional citations: ARGENTINA: Buenos Aires: T. Meyer 2409 (N). Córdoba: A. T. Hunziker 6471 (N). Tucumán: O'Donell 4600 (N).

## VERBENA MINUTIFLORA Briq.

Additional bibliography: Moldenke, Biol. Abstr. 35: 1688. 1960; Hocking, Excerpt. Bot. A.4: 592. 1962; Angely, Fl. Paran. 32: 69. 1964; Moldenke, Phytologia 11: 472. 1965; Moldenke, Résumé Suppl. 12: 5. 1965.

Leite 3744 is said to have had "violet" flowers, blooming in November. Smith & Klein found the species growing in bogs and ruderal by small rivers.

Additional citations: BRAZIL: Paraná: Saito & Pereira 436/33 (Ac). Santa Catarina: Smith & Klein 13469 (Ac). São Paulo: Leite 3744 (Ac).

## xVERBENA MOECHINA Moldenke

Additional synonymy: Verbena lanceolata Beck, Am. Journ. Sci. & Arts 14: 118. 1828 [not V. lanceolata Boldo, 1947, nor Willd., 1825].

Additional bibliography: Beck, Am. Journ. Sci. & Arts 14: 118. 1828; Moldenke, Phytologia 11: 472. 1965; Moldenke, Résumé Suppl. 12: 12. 1965.

The V. lanceolata of Boldo is V. hastata L., while that of Willdenow is V. litoralis H.B.K.

I have not seen the actual type of Beck's Verbena lanceolata, but from his description and the locality of collection it would appear to be identical with this hybrid. His description is as follows: "V. erecta, hirsuta; foliis lanceolatis, acutiusculis, basi attenuatis, subsessilibus, inciso-serratis; spica terminale, stricta, imbricata; bracteis lanceolatis, calyce superantibus. Stems simple, two or three feet high, stiffly erect, hairy. Leaves three to four inches long, about an inch in breadth, crowded together, somewhat acute, coriaceous, much attenuated at base, subsessile. Spike simple, terminal, dense flowered, imbricate. Flowers small, blue. Bracts narrow-lanceolate, acute, longer than the calyx. Resembles V. stricta in habit." The name, although definitely proposed as a new one and accompanied by a good description, has been ignored by the authors of the Index Kewensis.

## VERBENA MONTEVIDENSIS Spreng.

Additional bibliography: Hocking, Excerpt. Bot. A.4: 592. 1962; Reitz & Klein, Sellowia 16: 73 & 117. 1964; Moldenke, Biol. Abstr. 45: 6658 (1964) and 46: 3246. 1965; Moldenke, Phytologia 11: 473. 1965; Rambo, Pesquis. Bot. 21: 40-41 & [60]. 1965.

Recent collectors have found this plant growing in woods, dry woods, bogs, and ruderal in Santa Catarina, Brazil. Rambo (1965) cites Herb. Anchieta 446, 1129, 8574, 8788, 9374, 10204 [Friderichs s.n.], 11258 [Friderichs s.n.], 11260 [Friderichs s.n.], 30979, 32261, 34721, 36411, 44689, 45545, 49374, 50026, 51616, 52083, 54985, 56559, 56655, 59873 [Camargo 1192], 62791 [Camargo 2480], 62960 [Camargo 3125], & 63416 [Sacco 1086] from Rio Grande do Sul, and 54308 [Reitz 4971], 54372 [Reitz 5092], 58407 [Reitz



8374], 60193, 61104 [Mattos s.n.], 64261 [Mattos s.n.], & 64283 [Mattos s.n.] from Santa Catarina, Brazil — all collected by himself except where otherwise indicated. He describes the plant as "Erect, lignified at the base, besom-like ramified in the upper third, up to 2 m high", growing in "Densely vegetated swamps" in the "Northern Highlands especially in the Northeast, sea coast" in Rio Grande do Sul, with a general distribution of "From Minas Gerais to RGS and northeastern Argentina."

Additional citations: BRAZIL: Paraná: Dombroski 1034 [Saito 851; Herb. Inst. Def. Pat. Nac. 9443] (Ac); Dombroski & Saito 973/795 (Ac); Lourdes Pereira 96 [Herb. Inst. Def. Pat. Nac. 9445] (Ac); Reiss 56 (Mi); Saito 69 [Herb. Inst. Def. Pat. Nac. 9442] (Ac). Santa Catarina: Castellanos 24766 [Herb. Cent. Pesq. Florest. 3377] (Ac); Smith & Klein 14102 (W--2451611); Smith & Reitz 14332 (W--2451613). URUGUAY: H. H. Bartlett 21301 (G); Sellow s.n. [Montevideo; Macbride photos 17432] (W--photo of type).

VERBENA MULTIGLANDULOSA Moldenke

Bibliography: Moldenke, *Phytologia* 12: 479--480. 1966.

Citations: CHILE: Coquimbo: Marticorena & Matthei 315 (Z-type).

VERBENA NANA Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 473. 1965.

VERBENA NEOMEXICANA (A. Gray) Small

Additional bibliography: Moldenke, *Phytologia* 11: 473, 490, 501, & 502. 1965.

Weber & Charette found this plant growing on Acacia flats and low rocky knolls in Chihuahua, Mexico. The Straw & Forman 1380 distributed as this species is actually V. perennis var. johnstoni Moldenke.

Additional citations: TEXAS: Brewster Co.: E. G. Marsh Jr. s.n. [Jul. 1935] (Au--226482). Travis Co.: R. B. Payton 26 (Ld). MEXICO: Chihuahua: Weber & Charette 11660 (Mi).

VERBENA NEOMEXICANA var. HIRTELLA Perry

Additional bibliography: Moldenke, *Phytologia* 11: 473 & 502. 1965.

The Salgado s.n. [17.V.1961], originally distributed as this variety, is actually V. canescens var. roemeriana (Scheele) Perry.

Additional citations: MEXICO: Puebla: F. M. Leal s.n. [Teplaca, 24.VII.1955] (Ip).

VERBENA NEOMEXICANA var. XYLOPODA Perry

Additional bibliography: Moldenke, *Phytologia* 11: 473 & 502. 1965.

VERBENA NIVEA Moldenke

Additional synonymy: Verbena nicea Moldenke ex Hocking, Excerpt. Bot. A.5: 45, sphalm. 1962.

Additional bibliography: Moldenke, Biol. Abstr. 37: 1062. 1962; Hocking, Excerpt. Bot. A.5: 45. 1962; Moldenke, Phytologia 11: 474. 1965; Moldenke, Résumé Suppl. 12: 12. 1965.

VERBENA NIVEA f. ROSEA Moldenke

Additional synonymy: Verbena nicea f. rosea Moldenke ex Hocking, Excerpt. Bot. A.5: 45, sphalm. 1962.

Additional bibliography: Moldenke, Biol. Abstr. 37: 1062. 1962; Hocking, Excerpt. Bot. A.5: 45. 1962; Moldenke, Phytologia 11: 474. 1965; Moldenke, Résumé Suppl. 12: 12. 1965.

VERBENA OFFICINALIS L.

Additional bibliography: N. J. Anderss., Galap. Veg. 199. 1854; N. J. Anderss., Vet. Akad. Handl. Stockh. 1853: 199. 1855; Loes., Verh. Bot. Ver. Brand. 53: 74 [Abhandl. 239]. 1912; H. B. Davis, Life & Works Pringle 193. 1936; Clair, Of Herbs & Spices 153 & 232. 1961; Tergit, Fls. Through the Ages 233--234. 1961; Bohm, Pflanzenschutz 31 (4/5): 67--68. 1964; R. Pearson, An. & Pl. Cenozoic Era 58 & 72. 1964; Perring & Walters, Fl. Cambridg. 179. 1964; Loewenfeld, Herb. Gardening 214--216. 1964; Bohm, Biol. Abstr. 45: 7066 (1964), 45 (20): B.131 (1964), and 46: 3246. 1965; Moldenke, Résumé Suppl. 12: 8 & 12. 1965; Moldenke, Phytologia 11: 474--476, 501, & 502 (1965) and 13: 188. 1966.

Bohm (1964) states that this is an important transitional host for Aphis frangulae (A. gossypii), which attacks Cucurbitaceae and Rhamnaceae in eastern Austria in time of depression in midsummer and late summer, and is an essential limb in the secondary host plant range which concludes with the Cucurbitaceae in autumn.

Bergit (1961) says that "A flower which possessed all desirable magical qualities in abundance was the vervain or holy wort. The Druid priests used to make a sacrifice to earth before they cut a twig of vervain or mistletoe. In German the plant, and indeed the whole Verbenaceae, is called iron-herb, and Hieronymus Bock, reproving the women of the time for their foolish superstitions goes on to say 'Thus the vervain is called iron-herb with us, because we use it to harden iron'. Poachers in Bohemia rubbed their guns with vervain which they had picked, naked, before dawn on midsummer day, and a gun so treated was believed never to miss."

Perring & Walters (1964) report the species as "occasional throughout the county [Cambridgeshire, England] on roadsides and in grassy and waste places" and record it from England, Wales, Eire, and Fife [in Scotland]. They note that it was listed by Ray as far back as 1660. Pearson (1964) states that its seeds have been found at the climatic optimum in the Ipswichian interglacial period in association with Hedera and Buxus pollen.

Clair (1961) quotes the following medieval couplets:

"Whoever weareth Vervain or Dill

May be bold to sleep on every hill"

"Trefoil, Vervain, John's Wort, Dill  
Hinder witches of their will"

"Here holy vervayne and here dill  
'Gainst witchcraft much availing"

The same author adds the vernacular name "vervín". The M. Abarca 13, originally distributed as V. officinalis, is actually V. carolina L.

Additional citations: ISRAEL: Beach 5407 (W--2336674). AFGHAN-  
ISTAN: Beach 5110 (W--2336478). KOREA: Yongsok 8347 (Mi). HAI-  
NAN ISLAND: Lei 231 (Mi).

VERBENA ORIGENES R. A. Phil.

Additional bibliography: Moldenke, *Phytologia* 11: 475. 1965.

This species has been found growing at 2900 meters altitude in Atacama.

Additional citations: CHILE: Atacama: C. Castro s.n. [La Puer-  
ta, 20.XII.1963] (Ac); R. A. Philippi s.n. [Pajonal; II.1854;  
Macbride photos 17434] (W--photo); Ricardi, Marticorena, & Matthei  
630 (Ac). Coquimbo: Ricardi, Marticorena, & Matthei 690 (Z).

VERBENA OVATA Cham.

Additional bibliography: Moldenke, *Phytologia* 10: 289--292.  
1964; Rambo, *Pesquis. Bot.* 21: 47 & [60]. 1965.

Rambo (1965) cites Herb. Anchieta 9674 & 61356 [Pivetta 1125]  
from Rio Grande do Sul, the former collected by himself. He de-  
scribes the plant as "Erect, very coarse, leaves very large and  
broad", growing in "Swampy thickets" in the "Northwestern High-  
lands only" of that state, with a general distribution of "Misi-  
ones, western RGS, Uruguay".

Additional citations: BRAZIL: State undetermined: Sellow 3671  
[Macbride photos 17435] (W--photo of type).

VERBENA PARANENSIS Moldenke

Additional bibliography: Moldenke, *Biol. Abstr.* 33: 1215.  
1959; Hocking, *Excerpt. Bot. A.5*: 44. 1962; Moldenke, *Phytologia*  
10: 292--293. 1964.

VERBENA PARODII (Covas & Schnack) Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 476. 1965.  
Recent collectors have encountered this species in fruit in  
February and March and record the vernacular name "te de burro".  
Material has been misidentified and distributed in herbaria under  
the names V. glandularia Jørgensen and V. sulphurea D. Don. The  
Jørgensen 1613 & s.n. [26.III.917], Herb. Inst. Miguel Lillo  
31745, and Herb. Osten 10676, cited below, were previously incor-  
rectly cited by me as V. dissecta Willd., while Jørgensen 1737,  
Herb. Inst. Miguel Lillo 31472, and Ruíz Leal 7092 were previous-

ly incorrectly cited as V. tenera Spreng.

Additional citations: ARGENTINA: Catamarca: Jørgensen 1613 [Herb. Inst. Miguel Lillo 31745] (N), 1737 [Herb. Inst. Miguel Lillo 31472] (N), s.n. [26.III.917; Herb. Osten 19676] (N). Mendoza: Ruiz Leal 7092 (N).

VERBENA PARVULA Hayek

Additional bibliography: Moldenke, Biol. Abstr. 35: 1688. 1960; Hocking, Excerpt. Bot. A.4: 592. 1962; Moldenke, Phytologia 10: 296--297 (1964) and 11: 485. 1965.

VERBENA PARVULA var. GIGAS Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 35: 1688. 1960; Hocking, Excerpt. Bot. A.4: 592. 1962; Moldenke, Phytologia 10: 297. 1964.

VERBENA PERAKII (Covas & Schnack) Moldenke

Additional synonymy: Glandularia pecakii Covas & Schnack ex Hocking, Excerpt. Bot. A.6: 335, sphalm. 1963.

Additional bibliography: Hocking, Excerpt. Bot. A.6: 335. 1963; Moldenke, Phytologia 11: 476. 1965; Moldenke, Résumé Suppl. 12: 10. 1965.

Venturi found this species growing in sandy soil at 750 meters altitude, with blue flowers (Venturi 10301), in anthesis in March. This collection was previously erroneously cited by me as V. dissecta Willd.

Additional citations: ARGENTINA: La Rioja: G. Dawson 3380 (Ip). Salta: Venturi 10301 (N).

VERBENA PERENNIS Wooton

Additional bibliography: Moldenke, Phytologia 11: 475, 476, & 502. 1965.

Additional citations: TEXAS: Brewster Co.: B. H. Warnock 20437 (Ld).

VERBENA PERENNIS var. JOHNSTONI Moldenke

Additional bibliography: Moldenke, Phytologia 10: 305--306. 1964.

Straw & Forman describe this plant as an erect perennial herb, common but scattered throughout woods in open pine-Yucca-scrub oak community on all slopes, with light-violet flowers fading to white in the throat, flowering and fruiting in July.

Additional citations: MEXICO: Nuevo León: Straw & Forman 1380 (Mi).

xVERBENA PERRIANA Moldenke

Additional bibliography: Moldenke, Phytologia 11: 443, 462, 467, 475, & 476. 1965; Moldenke, Résumé Suppl. 12: 1. 1965.

Nieuwland describes the specimen cited below as "plant prostrate in circles a yard round, only the flowers ascending".

Additional citations: ALABAMA: County undetermined: Winchell 207 (W--73533). INDIANA: Saint Joseph Co.: Nieuwland s.n. [St. Mary's, Sept. 15, '24] (M1).

xVERBENA PERTURBATA Moldenke

Additional bibliography: Moldenke, *Phytologia* 11: 476. 1965; Moldenke, *Biol. Abstr.* 46: 3246. 1965.

VERBENA PERUVIANA (L.) Britton

Additional bibliography: Moldenke, *Biol. Abstr.* 35: 1688 (1960) and 36: 719. 1961; Brilmayer, *All About Vines* 350. 1962; Hocking, *Excerpt. Bot. A.4*: 592 (1962) and *A.5*: 44. 1962; Moldenke, *Biol. Abstr.* 46: 632, 3246, & 3618. 1965; Rambo, *Pesquis. Bot.* 21: 47--49 & [60]. 1965; Moldenke, *Phytologia* 11: 442, 470, & 476--477 (1965) and 13: 180. 1966.

Brilmayer (1962) calls this plant "Peruvian flame" and describes it as "Evergreen trailer offered by house and greenhouse growers for hanging baskets and summer containers. Its 2 inch crinkly leaves are roughly toothed, the flowers a glowing crimson. A variation 'Chiquita' has flowers striped with gay red and white, like peppermint candy."

Rambo (1965) cites Herb. Anchieta 450, 1137, 3042, 7850, 8990, 9118, 9544, 9958, 11252 [Heidler s.n.], 25190 [Theissen s.n.], 25213 [Theissen s.n.], 25970 [Henz s.n.], 26767 [Friderichs s.n.], 27579, 29550, 32016, 32539 [Henz s.n.], 33438 [Henz s.n.], 36417, 37030 [Spies s.n.], 37347, 37498, 38753, 39592, 39810, 42606, 42781, 42941, 43282, 43524, 44275, 46335, 47821 [Sehnen 3882], 48727, 51274 [Emrich s.n.], 51348, 54786, 55909, 56245, 57493 [Camargo 33], 59156 [Pivetta 968], & 60456 [Camargo 502] from Rio Grande do Sul, and 55318 [Reitz 4703] from Santa Catarina, Brazil -- all collected by himself except where otherwise indicated. He describes the plant as "Prostrate, branches radiating from a rootstock, up to 40 cm long", growing in "Dry, preferably sandy grassy Campos.....Over the whole of the Campos area, especially in the northeastern Lowlands and near the sea coast" in Rio Grande do Sul, with a general distribution of "From Peru, Bolivia and Paraguay to northern Argentina, RGS and Uruguay".

Additional citations: BRAZIL: State undetermined: Sellow s.n. [Macbride photos 17407] (W--photo). URUGUAY: Commerson 72 [Herb. Jussieu 5141, in part; Macbride photos 39503, in part] (W--photo). ARGENTINA: Buenos Aires: Commerson 71 [Herb. Jussieu 5141, in part; Macbride photos 39503, in part] (W--photo).

VERBENA PERUVIANA f. ALBA Moldenke

Additional bibliography: Moldenke, *Biol. Abstr.* 36: 719. 1961; Hocking, *Excerpt. Bot. A.5*: 44. 1962; Moldenke, *Phytologia* 10: 416. 1964.

VERBENA PERUVIANA var. GLABRIUSCULA Kuntze

Additional bibliography: Moldenke, *Phytologia* 10: 490--491.

1964; Moldenke, Biol. Abstr. 46: 3618. 1965.

VERBENA PHLOGIFLORA Cham.

Additional bibliography: Rambo, Pesquis. Bot. 21: 46, 49--50, & [60]. 1965; Moldenke, Phytologia 11: 467 & 477. 1965.

Recent collectors have found this plant growing in forests, stream beds, on rocky banks, and ruderal in Santa Catarina. Rambo (1965) cites Herb. Anchieta 444, 1120, 2964 [Baglione s.n.], 4273, 4488, 4508, 4775, 7848 [Thiessen s.n.], 11605 [Buck s.n.], 25298 [Theissen s.n.], 26992, 28583, 30011 [Emrich s.n.], 32817, 33279 [Emrich s.n.], 35460 [Ritter s.n.], 35908, 36419, 37693, 38555, 39020, 43350, 43620, 43780, 44020, 44165, 49084, 50183 [Emrich s.n.], 52158, 53369, 54059, & 55939 from Rio Grande do Sul, 54366 [Reitz 5073], 54370 [Reitz 5090], & 55301 [Reitz 4741] from Santa Catarina, and 3982 from Uruguay -- all collected by himself except where otherwise noted. He admits, however, that 54366 [Reitz 5073] has been identified as *f. alba* Moldenke. He describes *V. phlogiflora* as "Herbaceous, weak, erect or leaning to the neighbors, up to 1 m high", found in "Wet to swampy thickets in the Campos area.....Over the whole area of the Campos" in Rio Grande do Sul, Brazil, with a general distribution "From Cuba to Uruguay and northern Argentina".

Additional citations: BRAZIL: Paraná: Dombrowski 528 (Ac). Santa Catarina: A. Castellanos 24780 [Herb. Cent. Pesq. Florest. 3564] (Ac); Smith & Klein 13223 (Ac); Smith & Reitz 12592 (Ac). PARAGUAY: Hassler 4585 (Mi).

VERBENA PHLOGIFLORA *f. ALBA* Moldenke

Additional bibliography: Rambo, Pesquis. Bot. 21: 50. 1965; Moldenke, Phytologia 11: 477. 1965.

VERBENA PINETORUM Moldenke

Additional bibliography: Moldenke, Phytologia 11: 477 & 502 (1965) and 13: 187. 1966; Moldenke, Résumé Suppl. 13: 2. 1966.

Recent collectors have found this species growing in rocky soil and matorral, fruiting in August. The O. M. Clark 7059, Paxson & Barkley 16M839, and C. L. Smith 221, in part, cited below, were erroneously cited by me as *V. canescens* H.B.K. in previous installments of these notes.

Additional citations: MEXICO: Hidalgo: O. M. Clark 7059 (N); Galván s.n. [4.VIII.1963] (Ip). México: Paxson & Barkley 16M839 (N). Oaxaca: C. L. Smith 221, in part (N).

VERBENA PLATENSIS Spreng.

Additional bibliography: Rambo, Pesquis. Bot. 21: 50--51 & [60]. 1965; Moldenke, Phytologia 11: 477. 1965; Moldenke, Biol. Abstr. 46: 3618. 1965.

Rambo (1965) cites Herb. Anchieta 27997 [Rosengurttt B.810] & 32950 [Rosengurttt PE.5056] from Uruguay and 63156 [Spies s.n.] from

Rio Grande do Sul, Brazil. He describes the plant as "Prostrate, rooting at the lower joints, branches radiating, up to 30 cm long", growing in "Dry, grassy Campos" in the "Southwestern plains only" in Rio Grande do Sul, with a general distribution of "Chile, northern Argentina, Uruguay, westernmost RGS, Paraguay".

Additional citations: BRAZIL: State undetermined: Sellow s.n. [Macbride photos 34356] (W--photo). URUGUAY: Sellow s.n. [Montevideo; Macbride photos 17452] (W--photo of type).

VERBENA PLICATA Greene

Additional bibliography: Moldenke, *Phytologia* 11: 11--19, fig. 13 (1964) and 11: 451, 477, & 502. 1965; Moldenke, *Résumé Suppl.* 12: 2. 1965.

The corollas on Shinners 30033 are described as having been "violet-blue". Recent collectors have found the species growing in loose sand, red or loose red sand, light-tan sand, brick-red soil, gravel or Pleistocene gravel, light-tan sandy loam or light grayish-tan sandy loam, and grayish calcareous silt, and along sandy roadsides. The Flores call it "abundant in caliche" in Webb County, Texas. The Dominguez M. & McCart 8183, originally distributed as V. plicata, is actually V. halei Small.

Additional citations: OKLAHOMA: Cimarron Co.: C. M. Rogers 5437 (Mi), 5990 (Mi). TEXAS: Andrews Co.: Ballinger s.n. [May 1, 1960] (Au--221199). Duval Co.: P. Cabrera 55 (Au--233432); N. Castillo 6 (Au--233424); Flores, Chavez, & Hein 42 (Au--233433). Frio Co.: Lucas, Painter, & Barkley 14227 (Ld); J. R. Rodriguez 42 (Au--235229); B. L. Turner 4989 (Au--229412). Jim Hogg Co.: D. Montes 64 (Au--232735). LaSalle Co.: Winch 6 (Au--222240). Starr Co.: R. Acosta 73 (Au--232669); Alvarez, Guajardo, Salazar, & McCart 7923 (Au--222243), 8041 (Au--222194); Ramos, Sandoval, Salazar, & McCart 7867 (Au--222244). Stonewall Co.: Shinners 30033 (Au--222089). Webb Co.: Arzola 143 (Au--232754); Flores & Flores 117 (Au--233374); Gamboa & Dohnke 104 (Au--232755); Jorge Ramirez 39 (Au--232468); Soto, Herrera, & McCart 8070 (Au--222206). Zapata Co.: Herrera & McCart 7698 (Au--222238, Ip); Ramos, Sandoval, Salazar, & McCart 7847 (Au--222242); M. de J. Solis 106 (Au--233348). MEXICO: Guerrero: B. de la Garza 67 (Au--233423).

VERBENA POGOSTOMA Klotzsch

Additional bibliography: Moldenke, *Phytologia* 11: 19--20 (1964) and 11: 484. 1965.

Villafañe 524 is described as having had "purple" flowers, blooming in January. It was previously erroneously cited by me as V. dissecta Willd. The Hunziker collection cited below was previously cited by me, in error, as V. tenera Spreng. The flowers on Hunziker 5160 are described as "violet", blooming in March at 2500 meters altitude.

Additional citations: ARGENTINA: Córdoba: Villafañe 524 (N). La

Rioja: A. T. Hunziker 5160 (N). CULTIVATED: Germany: Herb. Hort. Bot. Berol. s.n. [Oct. 1839; Macbride photos 17440, in part] (W--photo of cotype), s.n. [Aug. 1843; Macbride 17440, in part] (W--photo of cotype).

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NOTES ON NEW AND NOTEWORTHY PLANTS. XLIII

Harold N. Moldenke

COMANTHERA KEGELIANA (Körn.) Moldenke, comb. nov.

Paepalanthus kegelianus Körn. in Mart., Fl. Bras. 3 (1): 438. 1863.

LEIOTHRIX VIVIPARA var. LONGIPILOSA Moldenke, var. nov.

Haec varietas a forma typica speciei pedunculis densissime longeque villosis, pilis patentissimis, recedit.

This variety differs from the typical form of the species in having the peduncles very densely white-villous, with long rather stiff hairs spreading at right angles.

The type of the variety was collected by Rolla Milton Tryon, Jr., and Alice F. Tryon (no. 6784) in dryish soil under rocks on grassland and sedgeland (with shrubby areas) with sandstone and quartzite rocks and derived soil, at 1295 meters altitude, on the Planalto of Serra de Cipó (a portion of Serra do Espinhaço) 85 km. north-northeast of Bello Horizonte, in the vicinity of the road from Lagoa Santa to Conceição do Mato Dentro at km. 133 from Bello Horizonte, Minas Gerais, Brazil, on November 21, 1965, and is deposited in my personal herbarium at Plainfield, New Jersey.

LIPPIA RECOLLETAE var. PICKELII (Moldenke) Moldenke, comb. nov.

Lippia pickelii Moldenke, Lilloa 5: 424--425. 1940.

LIPPIA TAYACAJANA var. SESSILIFLORA Moldenke, var. nov.

Haec varietas a forma typica speciei inflorescentibus sessilibus recedit.

This variety differs from the typical form of the species in having its inflorescences sessile or subsessile.

The type of the variety was collected by Paul C. Hutchison and J. Kenneth Wright (no. 7025) in the canyon of the Río Marañon 22 km. above Balsas on the road to Celendin, 4 km. east of Hacienda Limon, at an altitude of 1725 meters, province of Celendin, Cajamarca, Peru, on October 17, 1964, and is deposited in my personal herbarium at Plainfield, New Jersey. The collectors describe this plant as nearly or completely leafless shrubs to 2 m. tall, very local for several km., the flowers pale-cream with yellow centers, pleasantly fragrant, a tea being made from the leaves by the natives of the area.